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Original Communications.

A BRIEF REVIEW OF SOME OF THE RECENT PRACTICAL ADVANCES IN MEDICINE AND THERAPEUTICS.

BEING THE ADDRESS ON MEDICINE BEFORE THE AMERICAN MEDICAL ASSOCIATION, JUNE 7, 1893.

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THE function of the member of this Association who is called upon to deliver the annual address on medicine is not to give in detail the course and results of laborious laboratory investigation nor to weary his hearers with long reports of cases. It is rather his duty to present, as far as lies in his power, certain broad views of the present status of the non-surgical side of our work as doctors of medicine.

The consideration of one particular field of work is also out of place, and I have, therefore, decided that a brief and necessarily imperfect discussion of the present status of therapeutics and diagnosis would enable me to fulfil, to some extent at least, the duty which has devolved upon me. The department of surgical therapeutics and diagnosis does not fall to my care, and will be ably discussed by Dr. Mudd to-morrow.

By therapeutics I do not mean to indicate a subject already well worn, though new,—

namely, an enumeration of the new remedies which the manufacturing chemists are foisting upon us with an ardor beyond description, and with a success, so far as numbers are concerned, which is appalling to many conservative members of our profession. These drugs have their proper place, and form only part of the great line of advance which, while it is broken now and again by the development of a weak spot, is, nevertheless, moving forward, bringing with it much cause for congratulation and many promises for even more beneficent results in the future. To regard our therapeutics of to-day as improved only because of the invention of such compounds is to ignore the whole cause for encouragement,—namely, the increasing tendency to place all our remedial measures on a rational basis.

Very closely associated with this improvement in therapeutics is the increased accuracy of diagnosis which modern research has placed in our hands, for the correct diagnosis of a case must always be an important preliminary to proper therapy. Not the least of these diagnostic gains is the ability which we possess to recognize the presence of tuberculosis when the signs of the disease are so indefinite that positive information of the condition of the patient cannot be gained. Again, in many instances, where unusual and aberrant symptoms are present, microscopical examination of the blood may show the presence of various microorganisms. Nor should we forget the valuable aid rendered us by the advances in the diagnosis of gastric affections by the use of the stomach-tube, and the microscopical and chemical examination of the gastric contents, more especially in regard to the absence of hydrochloric acid in cancer and its excess in cases of gastric ulcer. Finally, an important aid to diagnosis in gastric disorders was the introduction of salol by Ewald to determine the motility of the stomach and the question of dilatation or atrophy.

The day is past when there is any excuse for the physician dodging a diagnosis and treating a patient on the indefinite basis of "general principles," and the public have learned that the shot-gun prescription of years ago is only a cover for the ignorance of the medical attendant who expects the various drugs to influence an area the diseased state of which he is himself unable to discover.

The prescription of to-day is to be written only after careful examination and study of a case, and its constituents must be directed towards the condition they are to modify. It is necessary, therefore, that diagnosis should be well enough advanced to enable us to discover the exact stage of a malady and the precise condition of the patient's system in addition to the knowledge that a given disease is in existence in his body.

Fortunately, the improvements in diagnosis and treatment have kept pace with one another, although other branches of medical science have fallen to the rear. The advances have been rapidly yet gradually accomplished, not by startling leaps, but by small and lasting accretions, which have formed on the sides of our older views, either modifying their appearance or completely changing their aspect.

These gains have not been heralded to the profession and the world at large as have many of the newer surgical procedures, which are often so brilliant at their inception that they dazzle the professional eye to such an extent as to blind it to the subsequent shrinkage which takes place in their practical importance. Sudden rushes are attractive, and for this reason even the laity often chide the physician for failing to advance as rapidly as the surgeon. The very character of a surgical operation is destined to attract attention from the more humdrum, but none the less important, medical methods, yet it is the latter which require in many instances a greater amount of attention to the minute points of differential diagnosis. As I have pointed out elsewhere, the relation of the knife to a diseased tissue must always be identical, while the relation of a drug to a disease process must constantly vary with the perverted function of the special protoplasm involved. The one carves the wood, the other grafts upon its living cells impulses which alter its activity. In the one case the questions of shock and repair are the points to be considered; in the other, the ever-changing vital processes, still more varied by perverted function, must be balanced and their importance weighed. For these reasons it is impossible for the physician to advance his methods by strides or bounds, and he can only remember the story of the hare and the tortoise when accused of being dilatory.

Leaving these general views of the question of medical, in distinction from surgical, advancement, let us, if possible, discover in what directions we have really made distinct advances. There are those who have seen method after method of diagnosis and treatment rise and fall, and who have in consequence become pessimistic as to the value of new ideas, partly, perhaps, because they have not employed them properly. There are others who are equally optimistic and excessive in the laudation of

new or old methods of diagnosis or remedial measures. A careful survey of the field certainly shows that a gain commensurate with the amount of labor expended has been made, and the only loss or stand-still that can be found is the tendency of the profession in general to rush after new things to the neglect of the old, which in many cases deserve more attention than is given them.

A very important part of this advance has been recognition of the fact that many conditions heretofore regarded as distinct individual maladies, and treated accordingly, are in reality merely manifestations of functional disorder elsewhere. No more interesting example of this can be adduced than anæmia. But a few years ago we were taught that anæmia was a state in which the blood was impoverished, and these conditions of anæmia might be divided into those which were simple and essential, or, in other words, those which would respond to treatment and those that would not. We had this empirical information, and we also knew by experience that while iron was useful in one form of simple anæmia independent of malignant disease, arsenic was more valuable in another. Later than this we came to regard anæmia chiefly as a manifestation of disease in certain blood-making organs, or an important symptom of many perverted functions; and, finally, the invention and employment of the hæmatocytometer and the hæmoglobinometer has enabled us to separate anæmia into a condition in which there is a decrease in the number of corpuscles or a decrease in the amount of hæmoglobin in each corpuscle. In other words, we now know that pallor may be due to too few corpuscles or too little hæmoglobin, and this being known, it is only a step to the understanding of the empiricism of years ago in regard to the use of iron and of arsenic,—namely, that in that form of anæmia due to a diminution in the number of blood-cells, arsenic did good, because by its alterative powers it increased cell activity in blood-cell-making organs, while where hæmoglobin was lacking iron came particularly into play. For these reasons we find that small doses of alteratives, such as corrosive sublimate and other mercurials, often overcome the anæmia due to deficient manufacture of cells. We may, therefore, explain why arsenic usually fails to do good in chlorosis, an anæmia of deficient hæmoglobin, and succeeds in pernicious anæmia, which is characterized by deficient corpuscles, but relatively increased hæmoglobin.

It is, unfortunately, only too true that the entire subject of blood-making and blood-breaking is as yet very imperfectly understood, but our therapeutic facts rest on rational ground now, if not before, and if the pathologist will give us more information upon these subjects, other remedial measures will be introduced or the empirical employment of others still further explained. Practically speaking, the therapeutist recognizes two very important points, the causes of which the pathologist must eventually solve,—namely, that one class of anæmias are due to defective or deficient hæmogenesis and another to excessive hæmolysis. The former are generally believed to form the simple class and the latter the essential or pernicious class. It is in the deficient hæmogenesis class that we fail. More than this, the causes of excessive hæmolysis are so various that we can further divide them into removable and permanent, the removable being represented by the cases in which copræmia or auto-intoxication takes place, and the others by the true pernicious anæmia, about which we really know very little save that most observers find evidence of profound hæmolysis in the percentage of iron in the liver, while in the dark-colored urine they believe a destructive agent exists which prior to its excretion has slaughtered many corpuscles. Unfortunately, it is at present impossible for us to separate clinically the hæmogenous anæmia from that of hæmolytic excess unless we find evidence of great corpuscular disintegration in a copious elimination of hæmoglobin in the urine, or a jaundice evidently hæmatogenous in character, or a large number of defective corpuscles, which would perhaps indicate defective hæmogenesis rather than that they were scarred veterans of a battle with a poison in the liver-cells or elsewhere. Post-mortem signs often aid us in the differential diagnosis, but this is too late to do any good to the doctor or patient.

There is one point, however, about which there can scarcely be any doubt, and that is that in many cases iron is greatly abused, being given when there is no indication for it or more frequently given in excessive dose. By excessive dose I refer to as much as 6 to 10 grains in a day of reduced iron. The amount of iron in the human body is very small, and every study ever made of its absorption and elimination after absorption has shown that these processes are very slow. Hamburger recovered from the fæces nearly all the iron administered, and Jacobi proved that even when the iron was injected into the veins, ten per cent. was at once eliminated by the bowels, liver, and kidneys, and the remainder deposited in the liver, spleen, and other tissues in the same manner as is any

metallic substance. The researches of Gottlieb have also been in confirmatory lines. When we consider that there is in the human blood only about thirty-nine grains of iron all told, we can see that the use of twelve grains a day in the course of a little over three days places a double quantity of the metal in the economy, which is not needed, and is either cast out, or deposited at any convenient spot there to lie undisturbed until it can be extruded.

Much, of course, depends upon the cause of the anæmia, but there is only one excuse for the use of the doses named.—viz., a condition of the digestive apparatus which results in the formation of a sulphide of iron in great quantity, so that only an infinitesimal amount escapes into the system. This explains the empirical fact that in some cases of chlorosis or intense anæmia iron has to be given in large doses to accomplish any good.

One of the best and most recent papers on this subject is that of Ralph Stockman, who gives a masterly summary of the subject of the absorption of iron in chlorosis. In this summary he points out that we have three chief theories as to the action of iron in anæmia. The first—the absorption theory—is based on the fact that as iron is taken into the body with the food, the iron of the hæmoglobin must be obtained from this source, and therefore that medicinal iron given by the mouth must be absorbed. The second theory rests upon the belief that iron is not absorbed when given by the mouth in addition to that in the food, but simply acts as a stimulant to the mucous membrane of the alimentary canal, therefore increasing the digestion of food, and so overcoming anæmia by the general improvement coincident upon proper nutrition. The third theory is that of Bunge,—namely, that in chlorotic conditions there exists an excess of sulphur or sulphuretted hydrogen in the bowel which changes the iron in the food into a sulphide of iron, which Bunge states cannot be absorbed. He believes that the inorganic iron which is given as a medicine saves the organic iron of the food by combining with the sulphur, and so indirectly cures the anæmia by the protection afforded the food iron. It is important to remember that each of these theories have been supported by many careful experiments, but it is also well to bear in mind that both the hypotheses and the experiments supporting them may be erroneously based. Thus, we have no right to imagine that the inorganic preparations of iron have a stimulating power over the alimentary mucous membrane, or even if they have, that this power is exercised in the peculiar line of aiding in the absorption of the organic iron of the food. Again, the researches of Hamburger, Damaskin, Gottlieb, Müller, Jacobi, and Socin, which show that after the internal use of inorganic iron there is no increase in the iron in the urine, are valueless so far as the conclusions drawn by them are concerned,—namely, that as there is no increase in iron in the urine there is none in the blood, and therefore it is not absorbed. These conclusions are not justified, because they are based on the erroneous view that because iron is not in the urine it is not in the blood, and because it is not in the blood it is not absorbed. Every one knows that in the case of chronic lead-poisoning, when the body is saturated with the metal, there is often no lead in the urine, the poison being deposited in the tissues; and if this is true of lead it may be of iron. Particularly is this to be remembered when we find Stockman quoting the researches of Mayer, Bidder, and Schmidt, and a host of others, who have proved that we are not to look to the kidneys as the path for the excretion of iron, but to the intestinal walls. Finally, Stockman has proved that when iron is used hypodermically it cures anæmia when it cannot stimulate the digestion or counteract sulphides.

Leaving the interesting and intricate subject of anæmia, and its diagnosis and treatment, we find another condition now recognized as a symptom, though often still classed as a disease,—namely, asthma. In reality asthma is no more a distinct disease than is dropsy. It is a manifestation of disease or disorder in other organs which results to some extent in local pulmonary signs. I need only mention the fact that every case of this condition will present some evidence of reflex irritation or other extraneous cause if it is carefully sought for, such as metallic poisoning, hay-fever, cardiac or naso-pharyngeal disease. We have, therefore, made an advance in the gradual knocking away of the props holding asthma on the pinnacle of being a distinct disease, and in a given case must direct our diagnostic and therapeutic powers first to the discovery and removal of the cause, and, second, to the relief of the local manifestation at the time of the attack, including, too, in many instances, the treatment of the secondary conditions caused by the paroxysm. It will be remembered that at one time we had two schools of thought concerning the actual local cause of an asthmatic seizure, the one claiming that the obstruction to respiration was due to swelling and hyperæmia of the mucous membrane of the bronchial tubes, the other, that it was the result of a spasm of the muscular fibres of these tubes. Now we know that

both conditions exist, and that both are probably the result of irritation or perverted function of the vagus nerve, for the filaments of this nerve are not only supplied to the bronchial muscles, but also the local vessels. Further than this, the peculiar relation of these important nerves to the cardiac, gastric, and pulmonary area and to the recurrent and superior laryngeal nerves all tend to complete a chain of physiological evidence hard to equal, particularly when we remember that the vagus is the governing nerve of the respiratory function, and that its origin is intimately associated with important vital centres and nerve-roots in the medulla. Here, then, we have an improvement in etiological knowledge which enables us to discern a cause and give an explanation of almost every empirical fact regarding the use of antiasthmatic drugs, since nearly every one of these we now know depends upon its action upon the unstriped muscular fibres, the vagus nerve, or on the depression of reflex activity for its therapeutic power.

There is still another condition which is gradually passing from the list of diseases into the list of symptoms,—namely, diabetes mellitus. Its passage from the dignity of a disease in itself to the less important place of a manifestation of a morbid process underlying it is only delayed because the physiologist and pathologist have not succeeded in fully explaining the process of sugar manufacture in the body in health and disease. Even at the present time we scarcely appreciate the numerous causes which have already been discovered as capable of producing this symptom. Not only does injury to Bernard's centre in the fourth ventricle result in hepatic hyperæmia, which in turn results in glycosuria, but section of the vaso-motor fibres in the spinal cord at such a point as to involve the nerves of the liver results in similar disorder, according to Schiff. Pavy has proved that destruction of the superior and inferior cervical sympathetic has this effect, and it has been known to follow intense inflammation or irritation of such nerves as the sciatic and trigeminus, and some have gone so far as to explain the glycosuria, seen sometimes in those suffering from sciatica, to the sciatic irritation.

Aside from these nervous factors governing glycosuria, very much more recent studies have shown that the gradually-growing recognition of diabetes as a symptom is founded on a sound basis, for we have now before us undeniable evidence that such a thing as pancreatic diabetes may occur. Years ago it was first noted as a physiological possibility, but the recent studies of Minkowski and Von Mering, with several others, have placed the entire question in a better light. Extirpation of this gland results in glycosuria; but if one-fifth of it is left behind the sugar does not appear in the urine, and this, with other facts, points to the pancreas having a power through a ferment rather than by its general secretion. Clinical cases are also now on record in which after death there has been found a condition of fatty degeneration or atrophy of the gland, either as the result of some morbid process or indirectly through the impaction of calculi in the pancreatic duct, which led to fatty degeneration or a cirrhosis, as in the cases recently recorded by Freyham. Therapeutics can do more for the diabetic than the pathologist can tell him of the cause of his disease, but the recognition of the fact that diabetes is a symptom of a number of conditions should lead the physician to the recognition of the fact that if a remedy successful in one case fails in another, it is probably because he has failed to discover that the cause in each case is not identical.

The ability to apply observation to cases, with resulting accurate diagnosis and still more accurate therapeutics, can be admired in every instance where it is observed, but it would be difficult to name a more eminent illustration of the beneficent results of such a trinity of good offices than is pictured by the work of Lauder Brunton on the nitrites. Brunton had noticed two facts, the one in the sick-room, the other in the laboratory. By the bedside he found that in many cases of angina pectoris a condition of intense arterial tension existed, which was manifested not only in the cord-like condition of the arteries, but also by the pallor of the skin due to contraction of the peripheral capillaries. This condition often preceded the attack of pain. Instead of tossing this discovery aside with the dogmatic belief that it was a secondary result of severe pain, he looked further to see if there was a causal relationship between the two conditions. Remembering that the over-distention of any muscular cavity, such as the bladder or intestine, results in pain, it occurred to him that a spasm of the arterial system might result in such over-distention of the heart-muscle, already feeble, as to cause the typical pain of angina pectoris; and this hypothesis was supported by a recollection of several facts,—namely, that exercise always produces contraction of the blood-vessels, partly by the contraction of voluntary muscles on large areas of capillaries, by the increased demands on the circulation, and, finally, that it is in gouty persons with irritable blood-vessel

walls that angina pectoris most frequently asserts itself.

In the laboratory Brunton had found that the nitrites all lowered arterial pressure, and by so doing caused the heart to empty itself very readily of blood, partly by depressing the vagus nerves and so permitting increased cardiac action. Here, then, was, in theory at least, the very remedy which should meet the indications in heart-pang, and the practical application of the hypothesis has given us that valuable method of treatment so universally employed.

The interesting relationship between physiological and chemical research and practical therapeutics when they are associated through logical deduction can also be readily studied in the production and use of a number of compounds, but in none other more satisfactorily than in the nitrites. Chemistry showed the various combinations which could be formed in this series, and proved that some of them were more stable than others. The pharmacologist showed that those which had stability were more slowly decomposed in the animal organism, and in consequence that their action was not so sudden nor so fleeting, and the therapeutist, recognizing that an unstable preparation, such as nitrite of amyl, could only be used for momentary effects, at once found the stable compounds of peculiar value when continued action was desired. It is because of this stability and consequent comparative slowness of action that the nitrite of sodium, potassium, and nitro-glycerin find favor, and that the still more recently employed and more stable compound, cobalto-nitrite of potassium, bids fair to come into general use.

I cannot leave this subject without pausing for the moment to insist on the importance of this question of seeking always for the cause producing any symptom in order that our therapeutic measures may be well applied. Many of us have doubtless experienced in boyhood "the pain in the side," about the heart, which was such an annoying and incapacitating complication of foot-races or the game of hare and hounds. For a number of years I wondered what the explanation of this pain was, and still more why it passed away as the boy got his "second wind." The reason is now evident. The first effect of severe exercise is to cause a rise of arterial pressure by reason of increased circulatory activity. This is soon accentuated by the obstruction offered to the flow in the capillaries of contracted muscles, which ordinarily are vast capillary areas, and, finally, the effort generates an increased amount of carbonic acid gas in the blood, which stimulates the vaso-motor centre and so still further increases arterial resistance. As a result of these agents and the altered pulmonary circulation, the heart becomes distended with blood and pain results. Almost at once, however, the natural demand for blood made by all organs when in activity causes secondary hyperæmia in the peripheral capillaries, the lungs are able to catch up to and eliminate the CO_2, and the heart is able to carry on its duty with ease, even though the excessive exercise be continued, or, in other words, the boy gets his "second wind." There are good reasons, therefore, in the custom which prevails among some athletes of taking strychnine or caffeine or black coffee before a foot-race, on the ground that it saves their wind. By means of these powerful cardiac and respiratory stimulants they enable the heart to overcome resistance and avoid distention of its cavities, and also increase the ability of the nervous centres to discharge impulses which the nerve-trunks may the more quickly carry to the tributary muscles. Such a form of explanation underlies the pathology and treatment of "shock," a condition often wrongly treated because its rationale is not understood. All causes which give rise to great nerve impulses result in some degree or stage of shock, and these states are chiefly manifested in the heart and vaso-motor system. As has been pointed out elsewhere, any frightened woman will exclaim, "You frightened me so my heart stood still!" and a second later will remark, "Just feel how fast my heart beats." The primary shock has so stimulated her inhibitory cardiac nerves that they at first inhibit the action of the heart-muscle, and then, having acted excessively, reaction sets in, and they permit the heart to move on uncontrolled even to an ordinary degree. This condition, in a more or less modified form, is found in all cases of "shock." It has been proved by experimentation on the lower animals that it is practically impossible to produce death by irritation of the vagus, and we know that death rarely occurs in the first stage of shock unless there exist previously cardiac disease in the muscles or valves. We very rarely see shock in its first stage, except in the man who has "his breath knocked out of him" by a blow, not over his lungs, but over the solar plexus, which reflexly results in vagal irritation. It is the second stage of shock which we are called upon to treat. Here we have the entire vascular area in a condition of profound relaxation, a condition exceedingly dangerous to cardiac integrity. Nothing is more stimulating to

a man in accomplishing a task than a moderate amount of opposition or number of difficulties, and nothing is more stimulating to the heart than the normal resistance offered by a blood-pressure maintained by an intact vaso-motor centre. The blood-vessels relaxed, the heart pumps, as it were, into vacancy, or as impotent of result and as exhaustingly as the wheels of an engine on a slippery rail. The result is rapid failure of the cardiac muscle by reason of futile endeavor and because the coronary arteries are imperfectly filled. The great arterial relaxation also results in serious changes in nutrition, and the profuse sweat weakens and chills the body. It is at this time that the employment of belladonna or atropine becomes valuable in the extreme. By its peculiar influence on the vaso-motor centre it produces normal vascular tone, stops the leaking skin, and steadies the circulation, simultaneously tending to raise bodily temperature. If at the same time hot coffee be given, as a cardiac tonic containing heat, and strychnine is used, we have a fulfilment of every indication.

Elsewhere I have called attention to what seems a common error on the part of many practitioners,—namely, an unnecessary dread of good-sized doses of strychnine. We frequently see $\frac{1}{60}$ or $\frac{1}{30}$ grain given at a time when better results would be obtained if $\frac{1}{10}$ to $\frac{1}{5}$ was used hypodermically. Profound collapse or advanced shock enables the patient to stand large doses of this drug, as does severe pain enable him to withstand full doses of opium, and full doses must be used if good results are to be expected. The question of the effect of mental shock or fright upon surgical shock is of great importance. Even animals, when brought directly from the street to the operating-table, show these signs most markedly, and how often does the gynæcologist try to get his patient away from the sight of the preparation for the operation, or away from the little children, to whom the mother bids a tearful good-by before going on the table for a severe operation!

A valuable illustration of advances made in our understanding of certain diseases is afforded by epilepsy. There is probably no one here to-day who does not remember the time when the seat of origin of the epileptic seizure was in dispute, some holding that it was due to disorder of the circulation at the base of the brain and others that it arose from disturbance in the cerebral cortex. Thanks to the studies of Ferrier and a host of others in England and on the Continent, we now know that true epileptic seizures have their origin in the cortex, and practically nowhere else. This being known, the rationale of the employment of the bromides in this disease was speedily explained through the researches of Albertoni and of Seppilli, who found that these preparations so depressed the cerebral cortex in its motor area that far stronger currents were required to elicit muscular response when the animal was under the influence of bromides than when in his normal state or under the influence of the ordinary anæsthetics. At the same time that this depressant action of the bromides was discovered, its powerful influence as a depressant to reflex action became fully appreciated, and its influence in a convulsive disorder, such as epilepsy, became the better understood. It is true that there is still a great deal to be done before we discover the cause of the epileptic attack, or, in other words, the changes in the cerebral cells which permit of epileptic discharges; but even in so strange a disorder there is reason to hope that improved methods of research may eventually remove this blot on the fair fame of modern pathology. Nor is this hope without foundation for its accomplishment. Those of you who have had the opportunity to study the elaborate research of Hodges, of Madison, in this State, will already have reasoned that if the changes in the nerve-cells produced by excessive exercise can be studied by means of staining and the microscope, it is not impossible for the changes in epileptic cells to be noted by methods of a similar character, particularly as epilepsy is a disease which is seen in the lower animals as in man. While such studies as those which have just been mentioned show advances, in the indications for and rational employment of drugs, instances are not lacking in which contraindications to the use of some remedies have been developed or the empirical knowledge of their contraindication explained. Thus, it had been a recognized fact in therapeutics that quinine, when given in full doses, always caused an increase in the number and severity of epileptic seizures in those who were subject to this malady, but it remained for the experimental therapeutist to show that quinine stimulated the cerebral cortex, and so caused increased irritability of the motor area.

Again, the knowledge of the depressant action of chloral on the motor tract of the spinal cord, and the same effect of bromides on the sensory tracts, has placed in our hands the best antidotal treatment for strychnine-poisoning; while the discovery that conium produces muscular quiet by depressing the motor nerves and not by acting on the spinal cord, shows us that in spinal convulsions its employment is

irrational, because it only blocks the pathway to the muscles, instead of preventing the discharge of impulses by acting on the parts directly at fault.

The discussion of this topic would not be complete did I not refer to one very familiar example of the value of physiological and pathological research in relation to disease,—namely, the discovery of the malarial germ, and the fact that quinine kills this organism. Only ten years ago we were taught that the use of quinine in malarial disease was purely empirical, and to-day its rational employment is accepted universally all over the world.

In our pride over our advances made because of good sense we should not, however, sneer at some improvements equally valuable, which are in our hands to-day rather because of good luck than by logical deduction. Thus, the scarcity of quinine and its consequent high price forced the chemist to seek for a method of producing this drug by synthesis, and the result has been not only the direct discovery of the value of salicylic acid in rheumatism, but, indirectly, the development of that invaluable class of remedies of which antipyrin is the chief. Nor does the value of acetanilide, phenacetin, and antipyrin rest upon the action for which they were introduced into medicine,—namely, the reduction of fever,—but rather upon their power, accidentally discovered, to relieve pain.

The value of some of the compounds is in several instances quite equal to that of the integral parts. Thus, salol is a remedy which many of us would no more dispense with in intestinal diseases than we would give up opium, quinine, and digitalis.

Of the prospective value of the treatment of infectious diseases by injections of serum from those who have been rendered immune, of the promises held out to us by the pathologist of a more clear understanding of many puzzling diseases, and of the possibilities of drug therapeutics in the near future, I shall not speak. Much might be said of them, but at this time they exist more in the future than in the present.

We are certainly passing through the golden age of medicine, and by the rational line of our advance are avoiding many of those theories which have misled our predecessors into beliefs since proved to be erroneous.

The American Medical Association not only links the profession into a chain which overcomes superstition and discovers fallacy, but by its ennobling influence produces unconsciously a wave of medical advance which sweeps on as grandly as does that of any other art or science known to man.

A CASE OF POISONING BY TARTRATED SOLUTION OF CORROSIVE SUBLIMATE.

By E. Q. Thornton, M.D.,
Demonstrator of Therapeutics, Jefferson Medical College; Acting Assistant Surgeon United States Marine Hospital Service.

My object in reporting the following case of poisoning by tartrated solution of corrosive sublimate is not with the view of advocating the use of any new antidote to mercury, but to call the attention of the profession to the fact that egg albumin—the ordinary antidote—will not alone be sufficient in cases of poisoning from corrosive sublimate to which tartaric acid is added. The case will perhaps be of some interest, as, since the general introduction of this substance as an antiseptic and germicide, most cases of poisoning from it will be with the acidulated solution or tablets. As is well known, the acid is added for the special purpose of preventing formation of the insoluble albuminate of mercury when it is brought in contact with open wounds. It also prevents the formation of albuminate when mixed with egg albumin, unless the acid is first neutralized by an alkali.

On Sunday morning, April 2, 1893, a young man of about twenty-one years of age called at my office and in a very excited manner told me he had about ten minutes before swallowed a quantity of solution made from a tablet of corrosive sublimate and tartaric acid.

As near as I could judge about three grains of the poison had been taken.

Detecting his mistake, he immediately swallowed several large draughts of water, and hurried to my office. The only symptoms that he presented were metallic taste in the mouth and burning pains in the œsophagus and stomach; he had not vomited.

I at once administered to him the white of three eggs and a teaspoonful of bicarbonate of sodium, thoroughly mixed in a cup of water; this was followed immediately by three cups of water, and in two or three minutes by a tablespoonful of mustard stirred in a glass of water. Vomiting immediately followed. At short intervals I twice repeated the above. After thus antidoting the poison and freely emptying the stomach, I administered the white of three eggs, half a teaspoonful of bicarbonate

of sodium, and three glasses of milk. Lastly, one ounce of sulphate of magnesium was given, for the double purpose of emptying the bowel and to set up endosmosis, so as to prevent absorption of any of the mercury that might have remained.

The only disagreeable symptoms which presented themselves after this energetic treatment were slight soreness in the œsophagus and stomach, which passed away about the third day.

PHYSIOLOGICAL ACTION OF CIMICIFUGA RACEMOSA.

By I. N. Brainard, M.D., Alma, Mich.

AS there are not very many studies of the action of cimicifuga on the human being when the drug has been taken in overdose, the following report may be interesting:

On November 26 I took 3 drachms of the fluid extract of cimicifuga, and in about half an hour had a feeling of fulness in the head; the face was flushed; there was a sensation of warmth all over the body, with vertigo, which was increased when in the erect posture. There was also considerable pain at the end of the spine. After an hour had elapsed all these symptoms were accentuated. There was redness of the eyes, but the pupils were normal, as was also the bodily temperature. The pulse was 100 and full, and there was marked increase in arterial tension. At no time was there any slowing of the pulse or any signs of cardiac depression. The headache now became excessively severe, and the spinal cord was apparently much stimulated. The muscles in the back, arms, and legs were hard and trembling. Two hours later these symptoms continued with increased severity, and nausea was added. There was increased peristalsis, but no purging. Four hours after taking the poison I drank some warm water, and vomited three times during the next five hours. The symptoms continued, nevertheless, until the eighth hour. The headache was so exceedingly severe that it was necessary for my wife to anæsthetize me with chloroform. There was a great deal of backache and restlessness. Eight hours after the poison was taken sleep came on, from which I waked several times with marked priapism. The effects upon the spinal cord and nerves were felt for a little over two days. There was considerable increase of bronchial secretion. There was no increase in urinary flow or in the secretion of the skin during the entire period of the paroxysm.

A CONTRIBUTION TO THE TREATMENT OF PULMONARY TUBERCULOSIS WITH PROFESSOR KOCH'S TUBERCULIN.

Supplementary Report, showing the Present Condition of Twenty-five Cases treated Two Years ago, read before the American Climatological Society, May 26, 1893.

By Karl von Ruck, M.D., Asheville, N. C.

REPORTS of cases showing the results of any particular procedure in therapeutics, made immediately or within a short time after their application, are current in medical literature, and while they unquestionably throw light upon the utility or otherwise of the treatment employed, it is not to be doubted that many such reports would require modification, indeed, might show the reverse of the conclusions first arrived at, if a longer time had intervened by which the permanency of the results or the final issue of the case could have been established.

We are the more ready with our reports if our work has apparently been successful and if the medical or surgical procedure is new and is attracting attention at the time; but if hasty reports and conclusions have ever been offered, it certainly was the case with the effects of Professor Koch's tuberculin. Indeed, in many instances a few weeks of experimental employment of the remedy was deemed sufficient for enthusiastic recommendation or for absolute condemnation.

It is now two years since I wrote a report of my first twenty-five cases treated with Koch's tuberculin, which report was presented to the American Medical Association at Washington on May 7, 1891, and subsequently published in the Therapeutic Gazette for June 15 of the same year. In making the report it was my earnest endeavor to be conservative, and I purposely published with it the detailed history and all important data in connection with the treatment of each case, so that the reader might be able to judge for himself the benefit each patient had derived.

The cases were divided into three classes:

Class A, five cases who had one or both upper lobes involved, but without destructive changes, the general health of the patient being still comparatively good.

Class B, seven cases with more extensive disease or moderate destructive processes, but still in a fair physical condition.

Class C, thirteen cases still further advanced in local disease, with considerable constitutional impairment, but still in a condition justifying some hope for improvement.

I concluded that report with the following remarks:

"*First.*—That, according to my experience with the patient under constant medical supervision, and under the precautions used, the remedy CAN be given with the avoidance of all unpleasant symptoms or danger.

"*Second.*—That while I believe that I have derived material benefit, the experience of many additional observers, under a *similar mode of management and administration to that adopted by myself*, is required to establish the exact value and range of applicability of the remedy; and,

"*Third.*—That the combined means by which my results were obtained appear to deserve the favorable consideration of the profession."

It is now my purpose to show the outcome of these twenty-five cases two years later, as a supplement to my first report, with such explanatory remarks as may be essential for each individual case. To this end careful inquiry has been made as to the present condition of each patient.

Case I., Class C, was reported as slightly improved when the treatment was discontinued on March 11, 1891.

This patient showed further improvement after the discontinuance of the remedy, and remained in the institution for fifteen months thereafter. Under a course of Liebreich's cantharadin, the larynx made remarkable improvement, the ulceration of the epiglottis healed, and the infiltration disappeared almost entirely, and sufficiently so as to result in the complete restoration of the voice; her nutrition also improved. In March, 1892, active changes again recurred in the lungs, which were accompanied by the usual symptoms of fever, increased cough and expectoration, and loss of flesh. The larynx remained unaffected. All these symptoms subsided under a second course of tuberculin, thirteen injections, from one-tenth to one milligramme, and the patient left the institution in May greatly improved.

At this writing a relapse of her lung-affection of recent date has come to my knowledge.

Case II., W. S., Class B, was reported as apparently cured. This patient has remained well to this date, and is entirely free from all symptoms. In April, 1892, he had an attack of la grippe, with an intense bronchitis of one week's duration, from which he made a prompt and perfect recovery.

An affection of the respiratory organs like la grippe may be looked upon as a crucial test of the permanency of recovery, and the frequency with which we note active symptoms to supervene in latent tuberculosis in connection with la grippe is well known to every practitioner.

The sputum during the existence of the acute bronchitis in connection with la grippe contained no bacilli.

Case III., Class A, reported as improved, has made an entire recovery, and has remained free from all symptoms to this date.

Case IV., Class C., was reported as improved and the laryngeal disease cured. This patient made still further improvement, returned home, relapsed as to his lung-affection, and died in July, 1892. The result as to the larynx was permanent until death.

Case V., Class C, reported as not improved, died in 1891.

Case VI., Class C, reported as not improved, died in 1891.

Case VII., Class A., reported as cured, has continued free from all symptoms, and is entirely well at the present time.

Case VIII., Class B, reported as apparently recovered, returned home; relapsed in fall of 1891; returned, and was treated again with tuberculin in the winter of 1891–92. He was again materially improved, but not to the degree as in the first course of treatment. He is free from fever, but coughs and expectorates. His general health is fair. He is still greatly improved as compared with his condition before his first treatment.

Case IX., Class A, was reported as apparently cured. He has remained entirely free from all symptoms to the present time, and is enjoying perfect health.

Case X., Class B, reported as greatly improved, returned home in May, 1891. His improvement has not only continued to the present time, but I have recently been informed of his entire recovery.

Case XI., Class B, reported as apparently recovered, has been free from all symptoms to the present time, and is entirely well.

Case XII., Class C, reported as improved, relapsed, and died in 1891.

Case XIII., Class C, reported as improved, relapsed in 1892, and died since.

Case XIV., Class C, reported as greatly improved. No recent report obtainable. He continued in his improvement to the date when last heard from,—October, 1892.

Case XV., Class C, reported as greatly improved, died in 1891.

Case XVI., Class A., reported as apparently recovered, has remained entirely free from all symptoms, and is perfectly well to the present time.

Case XVII., Class C., reported as improved, continued so when last heard from in November, 1892. No response to my recent inquiry.

Case XVIII., Class C, reported as greatly improved, continued so when last heard from. No recent report obtainable.

Case XIX., Class C, reported as improved, relapsed, and died in 1891.

Case XX., Class B, reported greatly improved, according to recent information has entirely recovered without resorting to further treatment.

Case XXI., Class C., reported as improved, is about the same at the present time.

Case XXII., Class B, reported as improved, has entirely recovered.

Case XXIII., Class B, reported as apparently recovered, has continued in good health, free from all symptoms, to the present time.

Case XXIV., Class A, reported as greatly improved, has entirely recovered, and is free from all symptoms.

Case XXV., Class C, reported as improved, obtained still further improvement. He subsequently relapsed, but improved again, and is now free from all active symptoms.

We find, therefore, that I reported in 1891, in the early stage, five cases treated, three of which were believed to have apparently recovered, one to have been greatly improved, and one to have been improved; all of which have made an ultimate recovery, no relapse having occurred in two years.

In the more advanced stage—Class B—I reported seven cases treated, four of which were thought to have apparently recovered, two to be greatly improved, and one improved. Of these seven cases we find six to have made a final recovery and to be well two years later, while one relapsed and is again improved.

This gives us for the early stage one hundred per cent. of recoveries, and for the middle stage eighty-six per cent. of recoveries and fourteen per cent. of improvements, without a death in two years.

In the far-advanced stage of Class C, I reported thirteen cases treated, four of which were greatly, six moderately, and one slightly improved; two had made no improvement. Of these cases, six are still alive, three of which have continued greatly improved and three others improved, while seven have died.

As to the share attributable to the treatment with tuberculin in obtaining these results, I am still and always shall be unable to mathematically demonstrate it. Every thoughtful reader who is free from prejudice must, however, admit that these results are such as have never been obtained by any mode or combination of treatment heretofore known.

In a paper upon the prognosis in pulmonary tuberculosis, published in the *Medical News*, September 13, 1890, I reported eighty-one early-stage cases corresponding to Class A, of which a subsequent inquiry, similar to the present one, showed twenty-four per cent. of recoveries and twenty-one per cent. of improvements. In a more advanced stage, of four hundred and thirty-four cases treated, nine per cent. recovered and eleven per cent. were improved. While a similarly large number of my cases treated with tuberculin might have shown the present results modified, yet it cannot be conceived that such a difference as this would be possible.

That it does not exist is, however, amply proven by my subsequent experience with a greatly increased number of cases treated since with tuberculin with equally good results, and which I shall report in a future paper.

It has been urged that the results obtained by me with tuberculin are not attributable to the remedy so much as to the favorable climate and the correct management of the patients in a special institution where this work has been done. If this were so, why have I never before been able to accomplish results even half as good under the same conditions? Why have other patients failed to improve and recover who, either on account of individual prejudice or that of their home physicians, have not received this remedy, and who were treated with every care possible during the last two years in the same institution and with the same advantages?

Why, then, it will be asked, is it that others have failed to accomplish such results, or, on the contrary, have testified to the injurious effects of the remedy with many of their patients? I anticipate this question because I have been asked it many times by medical friends who have visited my institution and satisfied themselves of my results.

In answering it I must first call attention to the fact that, with few exceptions, the administration of tuberculin, both in Europe and in this country, has been made upon the original mode first proposed by Dr. Koch.

For those who do not remember it, I may

add that the beginning dose recommended by him was 1 milligramme or more, and that the remedy was rapidly pushed in increasing doses to 100, or even more, milligrammes. This maximum dose was attempted to be reached in a month or six weeks, unless the patient were so completely "knocked out" by fever and constitutional reaction that the more prudent experimenter pursued a somewhat slower course, and the blind followers were overtaken by dismay and disaster in the acute processes induced with the remedy given in excessive doses.

In this connection we must also remember that Dr. Koch's first experiments were upon early-stage cases only which were physically able to occasionally bear even a severe fever reaction, and who happened to suffer no material harm, and that the cases treated were but few when the remedy was given to the profession. Under his plan of administration the results in early-stage cases were gratifying as compared with other modes of treatment, and, in a truly early stage, all other experimenters have seen equally good results with his own. Only in such early-stage cases did he recommend the use of the remedy, and had it been confined to such its utility would never have been questioned. The disasters occurred chiefly in the more advanced stages, and under the great expectations current at that time, patients, both in Germany and in this country, manifestly within a few weeks of their death, received tuberculin injections in quantities which, by their local and constitutional effects, several times caused immediate death.

In the earlier stages, too, it was found that unfavorable effects were occasionally induced from the large doses given, but these bad effects were the more uniform as the treatment was applied to patients whose general health and strength had been more and more impaired during the course and advance of the disease.

Such application of the remedy had never been contemplated by Professor Koch, and all for which I blame him is that he permitted it in the hospitals of Berlin, and became aware of it through the literature of the profession elsewhere without entering his protest.

Remembering, however, that he is not a practising physician, that all treatment of cases was carried out by his colleagues, and that he himself possesses no recent clinical experience in the treatment of consumption or any other disease, it must at this time seem strange that no one for some time dared to depart from the original dosage based upon experience with half a dozen cases only, two of which were then said to have apparently recovered.

With the greatest admiration for Dr. Koch and his labors, this appeared to me ludicrous, nevertheless, and when I mentioned my convictions to one of the hospital chiefs in Berlin, he reproved me as though I had committed the "unpardonable sin." "Would you instruct the master?" said he, in utter astonishment.

All those who, after their first disappointment, did not throw the remedy overboard, have since, at least in part, adopted my method of administration, and I believe that I have been the first one on either side of the water to enter a protest against its use as originally employed. Since that time excellent results have been obtained from minute and slowly-increasing doses, some of which I cited in a paper published in the *Southern Medical Record* for September, 1891, and my results have continued as favorable as ever under this method adopted by me within the first few weeks of its use.

The most recent report of Dr. Thorner, in Berlin, presented to the "Verein für Innere Medizin" on March 8, on his two years' use of Professor Koch's tuberculin, and which is highly favorable to the remedy, shows that he begins with $\frac{1}{20}$ milligramme, and increases about as I do. Under such doses he never saw any unfavorable effect. He emphasizes that the secret in its successful employment is the proper application of the remedy. My method of application is practically as follows:

Cases must be properly selected, and no patient is suitable for treatment with tuberculin who at the time presents symptoms of acute inflammatory changes in tubercular areas or evidences of softening, with septic fever.

Other modes of treatment, as indicated in my paper on the treatment of pulmonary tuberculosis (*Times and Register*, January 6, 1893), must be resorted to, by which these symptoms are first controlled. With these exceptions, patients in any stage where the disease is still confined to the lungs and throat are eligible to the treatment.

The treatment should be carried out in a special institution or hospital, where sufficient control and oversight alone are possible. It certainly must not be delegated to junior assistants or to physicians who do not possess large experience in physical diagnosis of chest- and throat-affections, or who are not otherwise well experienced in the treatment and management of cases of pulmonary and laryngeal tuberculosis. Close observation is indispensable.

A week's observation of local and general symptoms, fully recorded at frequent intervals,

must precede the use of the remedy, to assure the absence of contraindications.

A physical examination of the chest must precede and follow each dose given, the results of which, to the minutest changes observed, to be carefully recorded upon a diagram for comparison.

The difference between a local and general reaction must be clearly understood. The former consists in an increase of the local auscultatory phenomena, with or without slight increase in cough or a sensation of fulness in the tubercular area of the lung. In the larynx or other visible tubercular processes there are observable increased vascularity, sometimes slight swelling, and always increase of the secretions from that part.

Any effect beyond this is undesirable, and can be positively avoided if enough interest is taken in watching the case.

A general reaction, on the other hand, shows, in addition to the local effect, rise of temperature, increase in pulse-rate, sometimes nausea, even vomiting and diarrhœa. Those symptoms, if well marked, are signs of positive danger, and repetition of the same dose, or an increase of the dose, is almost sure to be followed by relapse.

No dose must be repeated until the effect from the previous dose has subsided, and then not until after twenty-four hours.

If the local reaction has been well marked or prolonged, a return to the dose which had previously been inoperative is required, and the increase must thereafter be the same as it would have been had a larger dose never been given. The same is of course equally true if general symptoms have been produced.

The reaction occurs, as a rule, in from six to eight hours. I have, however, seen it as early as three hours and as late as thirty-one hours after a given dose; this must be borne in mind, and frequent examinations, especially in the beginning of the treatment, are necessary, so that the effect may be recognized. The duration of the reaction is, as a rule, about six hours, if only local; if general, it may last twelve hours and longer. I have found that the same patient reacts, as a rule, within about the same limit of time.

A certain dose having been given without reaction following, this same dose is, nevertheless, to be repeated once before an increase is permissible.

If a too severe local or general reaction is observed, the patient must be put to bed and kept perfectly at rest until the reaction has entirely subsided.

Beginning with $\frac{1}{20}$ milligramme as a trial dose,—to which I have never seen a response,—the next dose is $\frac{1}{10}$ milligramme, and the increase is thereafter $\frac{1}{10}$ until 1 milligramme is reached; then I increase $\frac{1}{2}$ milligramme at a time until 2 milligrammes are reached. After that dose the increase is $\frac{1}{2}$ milligramme up to 10; from 10 to 20 milligrammes I increase $2\frac{1}{2}$ milligrammes, and thereafter 5 milligrammes, at a time.

Periods will be observed when for weeks together no local or general reaction is observed, while the subjective and objective improvement of the patient progresses favorably; and whenever a point has been reached where this improvement is radical and active symptoms have entirely subsided, this is the time to stop the use of the remedy, allowing an intermission of from two weeks to a month. If no relapse has occurred in this time, if everything is highly satisfactory, and the recovery is apparent, we keep the patient under observation as long as possible, otherwise a repetition of the treatment is of course necessary.

In the second course we begin again with $\frac{1}{10}$ milligramme, but increase after each dose so long as no local reaction is produced.

My results have been obtained upon this plan; and while other plans may also be safe and accomplish good results, and while some one may devise even a better plan, until better results than mine are shown by others, no change from my method is, in my judgment, permissible.

I have thus treated over one hundred patients with between six and seven thousand injections, and, with the exception of my first week or two of experimental use, I have never produced any effect which has in any way been detrimental, nor has there been one single case in which the treatment has caused discomfort. I have not found any advantage from Hunter's modification, and am of the opinion that it is in no wise safe to increase it faster than the original tuberculin.

He who cannot have his patients under close and constant observation, or who gives the remedy with less care, simply takes chances, and if no disaster follows it is good luck, nothing more.

As shown in the earlier part of this paper, I have one hundred per cent. of recoveries in the early stage; in the second stage, recovery has resulted in eighty-six per cent. and radical improvement in fourteen per cent.; in the last stage, marked improvement in forty-six per cent.; and these results have lasted over two years. In the cases treated since, the results

are equally good, and in the advanced cases promise to be slightly better still.

It is true I have had the advantage of an excellent climate. I have also made use of every other available means at my command whenever I believed that they could aid the patient's improvement. I have exercised the greatest vigilance in the use of the remedy, and have never allowed myself to take any chances, nor have I taken things for granted when I could satisfy myself by painstaking examination and inquiry, and the patients were all treated in my institution and under my constant care. The special treatment has not been delegated to assistants, but was carried out by myself, without sparing time and labor; but, with all this, it is also true that I have been equally careful and interested with patients who were treated in the institution before the advent of tuberculin, and with those who, during the two years past, did not receive tuberculin for reasons stated before, and the results, as compared with those in connection with tuberculin, offer no chance for comparison.

In my previous writings on tuberculin I have been exceedingly careful not to commit myself too far. I am now ready to stand by the remedy, not in recommending it as a cure-all, or under all conditions and manifestations of the disease, but certainly as a remedy of the greatest value when used as indicated in this paper. With me now it is no longer on trial as an experiment. On the contrary, I find its effects as reliable and as uniform as I could hope them to be under the great variety of individual conditions, such as constitution, stage of the disease, organs involved, and complications present.

If my precautions and methods in the use of tuberculin are really essential for good results, as I have found them to be, and which riper experience of two years or more of other observers seems to confirm, we must not blame the remedy if it failed to come up to our expectations under its erroneous use in unsuitable cases and in excessive and highly-dangerous doses. We should the less criticise it when the results were unsatisfactory in the hands of men with little experience in close physical diagnosis and in the management of the disease, some of whom dealt out their doses at their office hours without again seeing their patient until he came for his next dose, or until the physician was summoned to find how ill an overdose had made his patient.

Such experience was perhaps necessary to confine the use of the remedy to safe hands and to teach us the care and circumspection which are essential in its employment.

SUBCONJUNCTIVAL INJECTIONS OF CORROSIVE SUBLIMATE.

A Clinical Lecture delivered in the Jefferson Medical College Hospital, May 12, 1893.

By G. E. de Schweinitz, M.D.,
Clinical Professor of Ophthalmology in the Jefferson Medical College; Professor of Ophthalmology in the Philadelphia Polyclinic; Ophthalmic Surgeon to the Philadelphia Hospital.

GENTLEMEN:—Those of you who have attended the clinical lectures on ophthalmology during the winter session which has just terminated have not infrequently heard references to the treatment of various diseases of the eye, and particularly those of syphilitic origin, located in the uveal tract, by means of subconjunctival injections of the bichloride of mercury. Recently, we have been studying the effect of these injections upon patients who attend the out-service department, and it is expedient that you should become more thoroughly acquainted with the character of the lesions that are most favorably affected, and with the doses, technique, and complications.

Subconjunctival injections are by no means a new method of treatment. So long ago as 1866, Rothmund* advocated the injection of a solution of salt beneath the conjunctiva for the purpose of absorbing corneal opacities. Secondi† treated with success abscess of the cornea and hypopyon-keratitis with subconjunctival injections of sublimate; he also employed the method in iritis and in choroiditis and other diseases of the deeper structures of the eye. Darier‡ has particularly urged the method, and much credit is due to him for carefully classifying the diseases in which he found it successful. Quite recently he has again reviewed the whole subject, and reasserts his adherence to a method which he believes is based upon the soundest therapeutic principles and has been productive of the happiest results.§

The theory of this treatment is very evident,—namely, that a drug which is believed to be antagonistic to the morbid process shall be introduced directly into the affected organ, and thus come in contact in a concentrated form with the lesions which it is to antagonize. Under these circumstances it is plain that its efficacy is more enhanced than would be the case if it reached the organ after a general distribution through the system. As has been pointed out by several authors and one or two

* *Klinische Monatsblätter für Augenheilkunde*, 1866, p. 171.

† *Giorn d. R. Accad. di Med. di Torino*, 6, 7; abstract in *Nagel's Jahresbericht*, vol. xx. p. 258.

‡ *Archives d'Ophthalmologie*, 1891, p. 449.

§ *Annales d'Oculistique*, April, 1893.

reviewers, this method is analogous to local influence secured by the instillation of a mydriatic. Dilatation of the pupil may be produced by impressing the constitution with atropine or belladonna, but it is more reasonable and more simple to drop a solution of this drug in the conjunctival cul-de-sac. In like manner the antiseptic action of bichloride of mercury may be obtained by instilling a solution of it in the conjunctiva, or its effect upon the eye may be acquired by giving it by the mouth, or by injecting it hypodermically, but its absorption is more rapid when it is inserted beneath the conjunctiva, and certain experiments, especially those performed by Pflüger, seem to show that fluids thus introduced into the eye directly reach the cornea and anterior and posterior chambers, the suprachoroidal space, and even the peripheral layers of the crystalline lens and the vitreous humor. Therefore, as Grandclement has well said, it is not surprising if microbic or organic diseases, situated in the parts to which the sublimate has access when injected beneath the conjunctiva, disappear more promptly than in ordinary ways, provided they are incompatible with its bactericidal, or at least its antiseptic, properties. It is possible, too, that these injections act somewhat in the nature of a revulsive; at least, this is the view entertained by the author just quoted, who believes that they have some curious constricting power on vascular stases in the affected coats of the eye.

Be this as it may, the fact remains that a goodly number of cases have been reported in which excellent results have followed the method, and these may be classified as follows: Infective ulcers of the cornea; suppurative conditions,—for example, hypopyon-keratitis and corneal abscess; and diseases of the uveal tract, especially when they are of syphilitic origin and when they are not too acute,—*i.e.*, parenchymatous iritis, cyclitis, irido-choroiditis, and choroiditis itself. Less encouraging are the results which have been obtained in neuritis, retinitis, and atrophy of the optic nerve. Finally, and this is a most important point, a certain number of cases of sympathetic ophthalmitis, usually presenting themselves in the form of a uveitis, are said to have been cured by subconjunctival injections of corrosive sublimate. Indeed, as you will remember from the lectures last year, not only has the corrosive sublimate been injected beneath the conjunctiva in cases of this character, but also directly into the vitreous humor, constituting then an intraocular injection. The subconjunctival injections, however, are safer, and there is not yet sufficient evidence at hand to justify unequivocal recommendation of intraocular injections of antiseptic substances.

Let me now present to you a few cases and demonstrate the method. The first, a young man of twenty-two years of age, has been under my care for a long time, not only in this hospital, but also in the Philadelphia Hospital. When first seen, more than a year ago, he had an acute serous iritis, or keratitis punctata, due to acquired syphilis. This gradually subsided under the usual treatment, but, as you see, the centre of each cornea is occupied by a considerable white infiltration which has stubbornly resisted efforts to dissipate it. He has received a number of injections of sublimate beneath the conjunctiva, and although the test-types do not show any improvement in vision, he states that his sight is clearer. The injection is performed as follows:

The eye is thoroughly cleansed, and anæsthetized by the instillation of a four-per-cent. cocaine solution, and a hypodermic syringe thoroughly sterilized with carbolic acid (1 in 20) is used for the purpose of introducing the drug. I seize a fold of conjunctiva about eight millimetres from the corneal margin and inject 4 minims of the solution, which, you see, causes a well-marked area of chemosis. The strength of the solution has varied with different operators. Darier recommends 1 to 1000, and thinks the first dose should not exceed 1 division of a Pravaz syringe, or, in other words, $\frac{1}{20}$ milligramme of the sublimate solution. The solution which I have just employed is 1 to 2000, and consequently, instead of injecting about 2 minims, I have used twice that quantity.

The next case that I show you is a boy with a large infiltrated ulcer of the lower margin of the cornea. This has probably started in a phlyctenule, but has been subject to a number of relapses, and I understand from Dr. Veasey that this is the fourth time that he has presented himself with a fresh exacerbation. He has not as yet received an injection, and, with the precautions previously described, I repeat what you saw me do in the other case.

Immediately following an injection of this character there is some smarting, which, however, soon passes away, and very few complications have been reported. These consist chiefly of pain when the point of the syringe is not sufficiently sharp, or when a subconjunctival nerve is punctured; of an ecchymosis, caused by the penetration of a small blood-vessel beneath the conjunctiva, which, you see, has happened in the left eye of the first case; and, finally, of the production of keratitis, or even hypopyon-keratitis, such, for example, as Darier

has described. The last-named accident could scarcely occur except by some fault in the technique,—probably imperfect sterilization of the instrument. Great care must be taken that everything is clean, and the best instrument to use is a Pravaz syringe, the needle of which is composed of platinum capped with iridium, so that it may be heated red hot before each injection. Naturally, after each injection there is considerable chemosis, which can scarcely be regarded as a complication.

The number of injections must depend upon the case. In moderately acute cases every second or third day is probably sufficient, and Darier formulates the rule that if no results are obtained after ten injections have been made, it is useless to pursue the treatment further. In chronic cases the duration of the treatment is necessarily prolonged, while in cases presenting very active lesions,—for instance, in a rapidly-infiltrating infective ulcer, or in a sympathetic ophthalmitis,—not only should the injections be more frequent, but the quantity of fluid should be as rapidly increased as is compatible with safety and with the amount of reaction which is produced.

Thus far I have quoted to you the favorable results, especially the reports given by those in France, who are warm advocates of the method. It is proper to state, however, that in the many discussions which have taken place upon this advance in ocular therapeutics, if it may be so denominated, more than one surgeon has raised a warning voice. For example, Despagnet and Vignes have doubted the efficacy of the drug in controlling, or even favorably modifying, so serious a disease as macular choroiditis. One warning is sounded even by the warmest advocates of the method,—namely, that it should never be used in cases of such character that there is circulatory stasis, rendering the absorption of the liquid either difficult or impossible. Under these circumstances the drug would simply lie beneath the conjunctiva and act as a foreign body. Therefore in acute iritis, no matter what its type, general medication is of the first importance, and evident indications for other means should not be neglected,—for example, the use of atropine, or touching an ulcer with the galvano-cautery, or other stimulating application.

The experience of this clinic as to the efficacy of these injections is still a limited one. I have just shown you one case in which there is doubtful improvement. In another case of stubborn syphilitic plastic iritis, which has received several injections, the improvement has been surprising and prompt. One example of episcleritis treated with injections in the manner you have just witnessed, by myself and also by Drs. Phillips and Veasey, rapidly improved, after the ordinary methods had yielded indifferent results. At present, however, the disease appears stationary. It is possible that future injections may be more beneficial. A young man under my care in another hospital for gonorrhœal iritis—a disease which is singularly stubborn—has received three injections, two days apart, and has evidenced an improvement in his condition such as I have never seen occur in so short a time under any other method. Other cases which I might describe have not improved more rapidly than by the older and well-tried measures. I have had no experience that is worth quoting in combating the lesions visible only with the ophthalmoscope,—for example, macular choroiditis,—and I must confess that it is very difficult for me to be persuaded that much is to be expected under these circumstances. As I have already told you, however, Darier and other reporters claim very positive results.

Thus far I have spoken only of corrosive sublimate. Trichloride of iodine may be used in the same way, and also the cyanuret of mercury. In episcleritis, Snellen* injected a solution of sublimate (1 to 5000), and found it of great advantage. Van Moll,† who reports excellent results in iritis and irido-cyclitis with subconjunctival injections of sublimate, has found injections of salicylate of sodium useful in scleritis. Darier, however, referring to the same drug, and also to the trichloride of iodine and other medicaments, gives his preference, without hesitation, to the bichloride of mercury.

With proper precautions, reasonable care not to increase the dose too rapidly, and judicious selection of cases, no harm accrues from the treatment, and if we may believe the reports to which I have so many times referred, very good effects have been produced,—effects which, in a limited experience, we have seen repeated in some instances in this clinic and in the Philadelphia Hospital. Except in a few cases, sufficient time has not yet elapsed to form an accurate opinion as to the ultimate value of these injections,—*i.e.*, whether the good results which sometimes appear with surprising rapidity are permanent or not. Indeed, it has been intimated by some observers that

* "Transactions of the Ophthalmological Society of the United Kingdom," vol. x. p. 210.

† *Klinische Monatsblätter für Augenheilkunde*, October, 1892, p. 329.

the effects of the sublimate under these circumstances is temporary, and relapses are more likely to occur than when the mercurial influence has been secured by its introduction through the ordinary pathways. In order to satisfy ourselves upon these and other points connected with the method, we are now employing it systematically in all suitable cases. You shall hear the results at some future time, but the cases you have seen to-day serve to make you familiar with the very simple technique required to carry out the method.

PREVALENT ERRORS IN THE TREATMENT OF THE DISEASES OF WOMEN.

READ BEFORE THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, MAY 16, 1893.

BY G. BETTON MASSEY, M.D., PHILADELPHIA, PA.

THE *rôle* of a critic is not a pleasing one to some of us, either readers or hearers, and I for one much prefer the position of a worker rather than a talker. The frequent recurrence of certain experiences, however, compels me to assume this character on this occasion in alluding to mistaken views and practices that have gained deep hold on the profession. The practice of medicine is, unfortunately, yet unable to adopt certain and exact rules of procedure in combating many affections, and the testing of its conclusions should rank side by side with original conceptions. Error bears the relation to truth that darkness bears to light, and in holding up a mirror to our failings we necessarily point to better paths. That the other path may be at times yet unexplored as to its end need not blind us to its desirability compared with the one we know to be bad.

I by no means desire to claim infallibility for the views about to be expressed. They are merely my explanation of the failure to cure, or of the harm that has occurred to, cases that have subsequently come under my personal observation.

The views and practices to which exception is taken may be divided into the current errors of gynæcologists and the erroneous views of gynæcology held by general practitioners.

Erroneous Views and Practices of Gynæcological Specialists.—The slighter ailments of women rarely come under the attention of the gynæcologist in private practice, though frequently encountered by those who discharge dispensary duties, and it is, therefore, not strange that the specialist should turn to physical means as remedies for cases that have already scaled the gamut of medicinal treatment. Though this is so, it is not necessary to accept the new gospel, that the pelvis of woman, unlike all other portions of human beings, is the exclusive domain of major surgery. This error becomes practically apparent whenever young girls are torn by the insertion of large specula in examinations; whenever the cervix is unnecessarily wounded by tenaculæ; when the uterus is dragged to the vulvar outlet for mere examination; when the sound is hastily passed into the uterus; and when fierce efforts to elicit pain or detect growths are made in bimanual examinations. The trained finger in an intelligent bimanual touch and palpation will replace all these harsh measures, as a rule, and render far better service.

When a diagnosis of a "displacement" has been made, it is an error to assume that the proper course to pursue is to correct the malposition by placing within the vagina a skeletal structure never contemplated by nature. The displacement has been caused by some other condition, and no true cure can result until that condition is first remedied. When fixation accompanies the malposition, only torture can result from the use of pessaries, while in movable organs certain relief is possible in some instances only at the cost of weakened supports and a postponed cure. The causal condition in most cases of displacement is an enlarged uterus due to catarrhal or other inflammatory processes, and a true restoration of health may be obtained by remedies that correct this primal trouble. The use of artificial support within the vagina should be reserved as a last resort for incurable cases.

When a diagnosis of dysmenorrhœa, or, as I prefer to call it, menorrhagia, has been made, it is an error to assume that the proper treatment is to dilate the cervix. The reflex action of this harsh remedy relieves some cases, it is true, though often temporarily, but the theory of obstruction on which it is founded has no basis in fact. The worst cases of obstruction leading to hæmatometra may exist without the production of cramps, and it has been demonstrated that the musculo-neurotic storm called dysmenorrhœa usually occurs with a temporarily dilated cervix and no accumulation within the uterus. The causes of this condition are ovarian congestion, lack of development, and neurasthenia. It is against reason that these causes should demand for their relief that the cervix and a part of the body of the uterus should be stretched and torn until an audible snap is heard. And how do these *savants* reconcile within their theories of stenosis the fact that

they are unable to insert their large instruments for dilatation? A safe and sure remedy for menorrhagia is the galvanic current, and we can easily conceive its rationale to be the removal of the causes already enumerated.

An important error of the ultra-surgical gynæcologists is also the assumption that lacerations of the cervix cause the local suffering and reflex disturbances often found in cases where they exist. The views of Emmett on this question have never been received and acted upon as generally abroad as in this country, but my best reason for believing that a repair of these lacerations will not cure the patients is the evidence almost daily encountered that it has not done so. The sufferings continue after the operation in a large proportion of the cases, demonstrating that the real lesion is a chronic metritis, and that a repair of the laceration will often not cure this lesion. Proof in support of this statement was presented to the Philadelphia Obstetrical Society some years ago, and elicited but slight discussion; but I was gratified to be told privately after the meeting by a well-known surgeon present that he was then engaged in trying to cure cases in which he had operated ten years before. Slight lacerations are compatible with perfect health, and, in my experience, deep ones unaccompanied by metritis demonstrate their presence only by the occurrence of miscarriages. These latter cases should of course be subjected to the operation for repair. As to the dangers to be feared from scar-tissue in the cervix, it may be said that irritative conditions may lead to carcinoma and require treatment, but healed scar-tissue is as harmless in this situation as elsewhere in the body. Scar-tissue, moreover, is also left after the operation.

But all these questions are usually consigned to the limbo of "tinkering" by certain surgeons practising as gynæcologists, who invariably and honestly find ovarian disease present in every case examined. Their first mistake may be in arriving at this diagnosis of ovarian disease, and I have elsewhere pointed out the ease with which uterine tenderness may be mistaken for ovarian tenderness.* Ovarian disease of inflammatory type is, moreover, almost invariably preceded by uterine catarrhal disease, which is by no means latent when the usual diagnosis of salpingitis or ovaritis is made by the surgeon. Having made the mistake of attributing the patient's suffering wholly or mainly to the uterine appendages rather than the uterus, the associated mistake follows of removing by abdominal section the slightly-inflamed ovaries and tubes, while leaving the more important seat of the disease as a source of continued misery. Scores of such cases have come under my own observation after these operations, and the statement is generally made by the patients that their condition was made worse by them. The performance of this operation of Tait's has become so fashionable of late that young men less than half a dozen years out of college often count their cases by the hundred. The gynæcological dispensaries of our large cities have become shambles, where women by the score are persuaded to undergo operations that are unwarranted by sound judgment, and the nature of which is not explained to them. . . . I shall not dwell at length on the extent of this error; it is already too well known to you; but many remark that the excellent opportunities thus afforded for special studies in vivisection are largely lost, for the reason that the operator's interest in the case too often ceases after he has made another entry in his triumphant list. Assuming that the immediate result has been recovery, it is of no interest to find out that death occurred from bowel adhesions a few weeks later, or that the continuance of uterine disease added to newly-created neuroses makes the woman a wreck for life. It is to be hoped that wiser counsels will shortly prevail in this field, and that these over-zealous oöphorectomists will cease to regard ovarian disorders and ovaries as undeserving of the study and remedial care bestowed upon other portions of the body.

It is not a little surprising that many gynæcologists also still advise dangerous operations for the removal of benign fibroid tumors in the face of the well-attested value of electricity in this affection. Since the father of this operation of hysterectomy (Keith) declared that he wished it were possible to undo those first fifty-odd successful operations and replace their bloody details by the Apostoli treatment, the advances in the application of electricity to the treatment of these tumors has made it possible to accomplish even more than Apostoli claimed, yet Keith's surgical followers persist in adhering to his older views, oblivious of this most striking change of heart. That certain cystic myomas and fibroids demand removal is unquestionably true, but there is no warrant in subjecting patients with interstitial, solid growths to this dangerous operation when a simple remedy will accomplish a practical cure. And it is by no means necessary to go to England or France

* "Metritis as an Initial Lesion in Pelvic Disease" ("Transactions of the Philadelphia County Medical Society," May 10, 1892).

for proof of the value of electricity in this affection. America is certainly not wanting when a question involving gynæcology and electricity requires solution.

The removal of ovaries to arrest the growth of fibroids is also an experimental operation of a magnitude and gravity totally unwarranted by the results. Where good could possibly come from it, the Apostoli method is best suited and most successful, and in the cystic and rapidly-growing myomas unfitted to electricity it is equally useless.

Finally, the views of certain specialists should be criticised, wherein they either regard electricity as a cure-all in gynæcology or expect it to produce its best results without the possession of special knowledge and skill on the part of the operator. No experience has demonstrated the permanent or comparative value of electricity in cystomas of the ovary, degenerating interstitial fibroids, purulent collections in the pelvis, or carcinomatous growths other than cervical cancer. These fields for abdominal section should remain unchallenged. It is also unreasonable to expect electricity to cure organic disease of the spinal cord manifested in certain pelvic neuralgias. The field for scientific application of electricity is already a vast one, but it requires the same adaptability, cultivation, and expertness for its prosecution as other special departments of medicine. Employing an agent that in its physical aspects presents the most startling changes and progressions now known to man, its medical capabilities cannot be lightly fathomed by surgeons or others who wish to test a popular mode of applying it merely because they see so much about it in the medical journals, and who look on at Apostoli's clinic for a day and then import an outfit, while yet ignorant of the elements of electro-therapeutics. The more delicate applications of electricity in gynæcology can only produce their best results at the hands of a skilled specialist, and he who begins his electro-therapeutic work by essaying it is like a workman who constructs a house without foundations.

Erroneous Views of Gynæcology among General Practitioners.—Referring to the erroneous views of gynæcology prevalent among general practitioners, it may be said that much of the preceding criticism is equally applicable to them, for the diseases of women are more actively treated by general practitioners than any other special disorders. An abandonment of the ultra-mechanical theories that have been criticised will result in a more useful devotion of the general practitioner to this class of his cases, and fewer of his patients will be compelled to seek other advice. In the external and vaginal applications of electricity he will have a most useful remedy for the muscular and nervous relaxations so frequently found to be causative conditions in pelvic disease, not to specify other allied agencies the value of which I will not pause to affirm, and if he acquires the necessary knowledge and skill, the more direct treatment of catarrhal conditions will yield satisfactory results. Being free from an ambition to magnify his work into the fashionable operations of the day, he will be more patient and persevering than some have been.

Should, on the contrary, his work and inclinations lead him to pay scant attention to this study, his choice of a consultant should not be based on the erroneous view that gynæcology is synonymous with surgery. The relations of pelvic disease with the nervous system are not entirely without the pelvis. There are mucous membranes, muscles, nerves, and nerve-ganglia within this cavity, the latter in such variety and profusion that it is scarcely less proper to confound gynæcology with neurology. A proper discrimination is easily made in the qualifications of the consultant in a given case, particularly since surgical gynæcology has narrowed itself so closely of late within the lines of amputation and exsection of parts and organs, a work that should follow rather than precede other rational therapeutic indications.

212 South Fifteenth Street.

THE TREATMENT OF ACUTE BRONCHITIS.

A Clinical Lecture delivered before the Class at the New York Post-Graduate Medical School and Hospital, March 16, 1893.

By Reynold W. Wilcox, M.D., LL.D.

Reported by Oscar G. Harrison, M.D., Ph.G.,
Instructor in Botany and Materia Medica, New York College of Pharmacy; Clinical Assistant in General Medicine, New York Post-Graduate Medical School and Hospital.

COMING here this morning some of the members of your class asked me if there was not something new in the treatment of acute bronchitis. I assured them of a new remedy, and promised to speak upon this subject to-day. Some years ago, when working in the physiological laboratory, I became interested in the class of remedies called expectorants, and performed numerous experiments upon cats and rabbits with members of this entire series, and so far as I was able to determine, with the exception of a very few, the

expectorant effect produced by these remedies is but an early stage of the emetic effect. In the case of the majority of these remedies—and I can include for you in this list ammonium salts, senega, squills, antimony salts, ipecac, lobelia, and apomorphine—the distance between an expectorant and an emetic result is simply a question of dosage, and even that cannot be separated by definite figures, but, depending entirely upon the patient, the conditions necessitating modifications are personal. With these conditions in mind, the ideal expectorant would be one in which the expectorant and emetic dose is most distantly separated. Previously this has been best obtained in apomorphine. From my laboratory experiments, before mentioned, I found that following an administration of apomorphine to cats and rabbits, an expectorant effect was produced; and upon opening the trachea half an hour after a hypodermic injection of this drug, it was found to be filled with frothy mucus, the mucous membrane pale, and the blood-vessels hardly visible. Acting upon the desire of Professor H. H. Rusby, of the New York College of Pharmacy, the noted botanist and traveller, I commenced about four years ago the clinical study of what was, at that time, a new drug, and accompanying my observations can be added those of Stewart, Mettler, Eckfeldt, and Shoemaker.

This is *cocillana*, the bark of *cocillana Rusbyi*, Britton, coming from South America. The preparation which I have used has been the fluid extract, in doses of from 5 to 25 minims, every three to six hours. I think the fluid extract preferable in many cases to a tincture because of the absence of alcohol. I am now experimenting with a syrup which contains all the active principles of the bark, excepting those which are removed by precipitation by water from an alcoholic solution. The dose of the syrup is from 1 to 2 fluidrachms every four to six hours.. The powdered bark, when given, produces nausea and a desire to vomit within about a half-hour, and lasting an hour, accompanied by an early discharge of mucus and followed by dryness of the throat. There is with large doses a desire to defecate.

This symptom is by no means so well marked with the syrup as with the other preparations. This fact led me to believe that the resinoids extracted contained the purgative properties of the drug, and upon experimenting with this extractive portion I found it to possess a decided cathartic effect. The glands and vessels are stimulated, especially those of the mucous membrane of the bronchial tubes and of the digestive system, this stimulation evidencing itself by increased secretion lasting for several hours.

A hyperæmia of mucous membrane unaccompanied by secretion would be an indication for its use. The cases for which this remedy is useful are acute bronchitis, subacute and chronic, dry bronchitis, and chronic disease of pulmonary tissue. In these classes of cases there are reasons for the use of cocillana in preference to ipecac and apomorphine and many other expectorants.

With cocillana the expectorant effect is distant from the emetic effect, and can be depended upon to secure these results. When vomiting is produced from cocillana, it is because of injudicious use, for emesis was only produced from the syrup when 2 ounces had been taken at a single dose.

Cocillana requires from three to six hours in which to act, while apomorphine acts from within a half to one hour. Approximately the same difference is noted in the recovery from the effect of this drug, apomorphine passing off within two or three hours, requiring frequent doses, while the effect of cocillana, once established, persists for from four to six hours, this being a decided advantage. Cases of acute bronchitis seen within the first forty-eight hours are more quickly relieved by apomorphine, but in cases seen at a later period than this cocillana is to be preferred. With cocillana the appetite is increased, and if a laxative effect is secured, that is of advantage in acute bronchitis.

In cases of chronic bronchitis cocillana is of great advantage and more positive in its effects than either apomorphine or ipecacuanha. In cases of senile bronchitis it is contraindicated, for it may add to the bronchorrhœa so that it may become dangerous.

In chronic disease of the pulmonary tissue cocillana has a valuable field of usefulness, liquefying secretion and relieving acute exacerbation. In conclusion, I believe that cocillana can fully replace ipecacuanha, which is now becoming expensive, and that it can be used with great advantage in place of apomorphine, carbonate of ammonia, strychnine, and those drugs classed as expectorants.

Next week, before the Brooklyn Medical Society, with Professor H. H. Rusby and Professor Virgil Coblentz, we shall give a collective study of cocillana, and you will then be able to secure the results of our observations of this drug in a more exhaustive presentment of the subject. The prescription that I use I will put upon the black-board,—

℞ Extracti cocillanæ fluidi,
Extracti lippiæ Mexicanæ, of each, f℥ss. M.
Sig.—Thirty drops in a wineglass of water every four to six hours.

Gentlemen, I think I have had the pleasure of offering you something new, and thus have fulfilled my promise.

TREATMENT OF DIABETES MELLITUS WITH SALOL.

DR. ARTHUR NICOLAIER reports the results obtained in the treatment of seven cases of diabetes mellitus with salol, in the *Therapeutische Monatshefte*, March, 1893.

In a fat diabetic from whose urine, previously under an antidiabetic diet, the sugar had disappeared and the other diabetic symptoms had improved, a very favorable result was obtained from the use of 30 grains of salol three times a day. The urine remained free from sugar for eight days under a mixed diet, the amount of urea diminished nearly one-third, the quantity of urine became normal in amount, and the increased thirst and weariness disappeared. After discontinuing the salol the urine remained free from sugar for nine days on a mixed diet, then the sugar returned and gradually increased, and so also did the excretion of urea. Nevertheless, eighteen days after the salol had been stopped, the amount of sugar was only one-third what it had been before the salol treatment.

In this case, also, the salicylate of sodium, in doses of 75 grains, proved active, but less so than salol. A second use of salol again caused disappearance of sugar from the urine and lessening of the amount of urea excreted.

In the same way, in a second and third case, salol proved effective in the dose of 90 grains a day. In the second case, also, a previous antidiabetic diet had caused the sugar to disappear from the urine, but it had reappeared when an error in diet had been committed, and then persisted in lessened amount in spite of a strict antidiabetic regimen. In the third case the antidiabetic diet availed only to lessen the amount of sugar to a moderate degree. In both cases the salol, however, in a short time made the urine sugar free, but in the second case only transiently. In this case the increased excretion of urea and the intensity of the excretion of acetone were not lessened by the administration of salol.

In the fourth case the effect of the salol was favorable, but only transiently and incompletely, but the patient was on mixed diet.

In the last three cases the salol was entirely without effect. In one of these an antidiabetic diet caused the sugar to disappear in a short time, while in another the sugar was lessened by the diet, but the quantity of urea was increased.

It is uncertain why salol is effective in some cases and fails completely in others. Nicolaier suggests its use especially when an antidiabetic regimen cannot be carried out. It is best given in capsules. Its use must be stopped if symptoms of intoxication—loss of appetite, nausea, vomiting, tinnitus, and albuminuria—appear. Albuminuria from nephritis is a contraindication to its use.

THE TREATMENT OF CRETINISM BY HYPODERMIC INJECTIONS OF THYROID EXTRACT AND BY FEEDING WITH THYROID GLAND.

In the *Lancet* for March 18, 1893, CARMICHAEL reports a case of cretinism treated by hypodermic injections of thyroid extract and by feeding parts of the gland. He used 10 minims of the extract twice a week for six weeks. The mother noticed that the child was restless, irritable, and sleepless, and apparently worse. Accordingly he reduced the injection to 10 minims weekly, and after that to every two weeks; on three occasions allowed four weeks to intervene between the injections. He then ceased giving the hypodermic injections and began feeding with the raw gland, giving half a lobe at first, and then after two weeks one lobe per week. This, however, proved too much, as it disagreed with the child.

The result of the treatment was continuous improvement. Even after the first injections the appearance of the child changed to a daily decrease in size, the thick lips and nose became more normal, the skin was pliant and soft, and the growth of the hair more healthy. After a short time the child began to walk, and marked improvement in mental activity was manifest. A picture of the child before and nine months after treatment is shown by Carmichael, which certainly shows marvellous improvement, the treatment being six months by hypodermic injection and three months by feeding. During the nine months the child had grown fully four inches; the temperature still remains at about 97° F. He also states that he has two cases of myxœdema in adults which he has treated by injections and feeding, and that he has had wonderful improvement in these cases.

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Leading Articles.

THE ADMINISTRATION OF CARDIAC STIMULANTS.

IN leading articles in recent numbers of the THERAPEUTIC GAZETTE we have called attention to certain cardiac depressants in the treatment of diseases of the heart. Our attention has been called to the administration of cardiac stimulants in certain functional conditions of this organ by an editorial in the *Boston Medical and Surgical Journal* for March 30, 1893. In this editorial it is stated that there is a lack of good remedies to meet the indications furnished by the weak heart of pneumonia and febrile diseases in general. This is a statement which we do not believe is justifiable unless it is qualified. It is true that we do not possess cardiac stimulants which will do everything that we could desire, and we probably never will possess drugs which will carry out every indication that we would wish. We are inclined to think that in many instances the difficulty does not lie in there being a lack of proper medicaments, but rather in the fact that the physician does not apply them with as much thought as to their action as the necessities of the case require.

The first and most important point, we think, in the administration of a cardiac stimulant is to remember that the vaso-motor system, which governs the tonicity or tension of the blood-vessels, is quite as important a factor in the preservation of life as is the action of the heart itself. Those of the profession who are accustomed to listen at the præcordium, and to make careful examination of the condition of the heart in cases of disease, constantly meet with instances in which the pulse seems exceedingly feeble, and yet auscultation reveals a heart acting forcibly and with great rapidity; or, again, they find that the pulse is slower after digitalis has been given, that the heart is acting with great force, and that the radial pulse, while it may be slow, gives an unfavorable impression to the skilled touch, and consists in abortive waves, or large ones which flow languidly through a relaxed blood-vessel. If the digitalis has been given in overdose, there is produced that peculiar inco-ordination of the heart's action so characteristic of overdoses of this drug. The condition which we have spoken of can only be due to a relaxation of the blood-paths, with the result that the nutritive changes which should constantly go on between the blood in the capillaries and the tissues surrounding them are impaired. The heart is endeavoring unsuccessfully to fill blood-vessels which are too relaxed to offer normal resistance to cardiac action, and, as a result, this important muscle soon becomes exhausted because of excessive effort. Under these circumstances the administration of a good vaso-motor stimulant, such as belladonna or atropine, will dry the skin, disperse the symptoms of collapse, increase the tension in the radial pulse, slow the heart by increased resistance to the flow of blood from the ventricle into the arterial system, and, by establishing the normal condition of resistance in the blood-paths, will enable the heart to perform its function properly, to the benefit of the body, and with a better supply of blood to its own tissues through the coronary arteries. If digitalis is being administered with no good result, belladonna should be used every four hours, in the dose of 10 or 15 drops of the tincture, while the more slowly acting stimulant may be given in the dose of 10 to 20 drops

every eight hours, or three times in the twenty-four.

In other instances the hypodermic injection of $\frac{1}{100}$ grain of atropine will act equally well. In any event, as soon as the full physiological action of belladonna has been established, smaller doses may be employed, enough being used to keep the arteries in a proper condition, without the manifestation of other marked physiological symptoms of the action of this mydriatic. A very important point in regard to the therapeutics of cardiac stimulants during the presence of pneumonia or other fevers is the fact that digitalis will rarely exert any beneficial influence while the temperature of the patient is as high as 102 or 103, and it frequently serves to do nothing but disorder the stomach if given at this time. In many instances the appearance of crisis is marked not only by the fall in temperature, but by the manifestation of cumulative action of the cardiac stimulant, so that for days after the temperature has fallen to the normal the slow characteristic pulse of digitalis persists.

In other instances where cardiac failure asserts itself in the course of pneumonia or other acute febrile processes it is sometimes forgotten that we need under such circumstances rapidly-acting drugs rather than those which require some time for their absorption and the exercise of their peculiar influence. To give digitalis or strophanthus in the face of impending cardiac failure during the period of crisis is hardly rational, though their influence is fairly permanent when it is once established. The time which is lost prior to their exercising their effect is often the most valuable. At such times the more diffusible rapidly-acting cardiac stimulants are indicated, and it is hardly necessary to say that of these ether or alcohol, hot and concentrated, or the aromatic spirits of ammonia fulfil the indications. If they are given, the physician should bear in mind the fact that they are fugacious in their action, and if their action is to be kept up for any length of time the dose must be frequently administered.

Another diffusible cardiac stimulant which is not resorted to as frequently under such circumstances as it deserves is Hoffman's anodyne, which has the advantage that it can be readily given hypodermically, while the ammonium preparations cannot be used in this way without the danger of a subsequent slough.

Far superior to all these remedies at such a time is strychnine, the dose of which should be generous if the physician has decided to employ it. There is little use in giving this drug by the mouth in such cases in doses of less than $\frac{1}{20}$ grain; or, if by the hypodermic needle, of less than $\frac{1}{30}$ grain. Frequently $\frac{1}{10}$ grain is required to accomplish all that is necessary for the patient. Where the physician is not sure of the individual susceptibility of the patient, it may be wise to use $\frac{1}{40}$ grain hypodermically every fifteen minutes until some sign of the action of the drug is manifested. Even with strychnine, which is at once a powerful stimulant to the heart, the respiration, and the vaso-motor system, it is frequently necessary to administer simultaneously atropine or belladonna, and there are very few instances of depression of the circulation in which a combination of belladonna or its alkaloid with a cardiac stimulant will not give better results than the employment of any single drug.

SUBCONJUNCTIVAL INJECTIONS OF CORROSIVE SUBLIMATE.

FOR the past year or two much attention has been directed to the use of subconjunctival injections of germicidal solutions in the treatment of a variety of ocular disorders. The testimony as to the value of this therapeutic measure has come in great part from French observers, and although, in the main, it has been favorable, all of the surgeons who have participated in the discussions upon this subject, particularly in the Society of Ophthalmology of Paris, have not been in entire accord. Recently, the editor of the *Annales d' Oculistique*, feeling that it was important to ascertain from the ophthalmologists of various countries their opinion of subconjunctival injections, has issued a circular letter propounding a series of questions. the answers to which are calculated to secure the needed information on this point; in short, he has undertaken a collective investigation inquiry, the object of which is to ascertain in what form these injections have been employed, in what character of cases, and with what results. This enterprise is most commendable, as it is eminently proper that every new method in ocular therapeutics which presents reasonable claims for attention should be carefully studied before it is recommended in the place of older and well-tried measures.

Darier (*Annales d' Oculistique*, April, 1893), starting with the proposition that a primary or secondary infection, when it is localized in so important an organ as the eye, is of the first importance, and that to stop the infectious process we should endeavor to ascertain the best possible means to exterminate it on the

spot, reviews the value of these subconjunctival injections of sublimate, and adds further data to those which he has already published strongly supporting their efficacy. Believing that the object of therapeutics directed towards the cure of localized infectious diseases is to secure the introduction into the affected territory of some antiseptic agent which may come in contact with the morbid process which is there implanted, the first point to be decided is, What is the best possible spot for the introduction of the drug? Evidently a germicidal solution may exercise its beneficial influence upon an eye by coming in contact with its coats, either by its instillation into the conjunctival cul-de-sac, or by its introduction beneath the conjunctiva, or, finally, by its injection directly into the capsule of Tenon. Darier's experience has convinced him that it is absolutely a matter of indifference whether the injection is made beneath the capsule of Tenon or simply under the conjunctiva. The effect depends entirely upon the absorption of the drug, and this is equally rapid, no matter which of these two areas receives its influence.

From the time that Rothmund injected beneath the conjunctiva solutions of salt water for the purpose of dissipating opacities of the cornea, to the most recent subconjunctival injections of sublimate given to influence nutritive processes of the eye under a variety of circumstances, local ocular therapeutics of this character, in his opinion, are indicated whenever prompt and decisive action is required. In sympathetic ophthalmitis, for example, the chief treatment of which thus far has consisted of enucleation or of one of its substitutes, and a constitutional impression with mercury, no matter what theory we may accept of its origin, or what pathway we may believe the infectious process takes, the most potent results seem to him to have arisen from local therapeutics, and he bases his opinion not only upon his own experience, but upon that which rests upon the observations of Gallenga, Secondi, Raymond, Abadie, Coppez, and a number of other surgeons.

The indications for this treatment are described somewhat in the following manner: In the ordinary form of infectious ulcer of the cornea, subconjunctival injections of sublimate, made for several days in the neighborhood of the affected territory, produce effectual antisepsis. When these are associated with the use of the galvano-cautery, and the ulcer is taken in time, results are secured with a promptness and a surety that are not accorded by any other form of treatment. In like manner septic wounds of the eye, when ocular suppuration is imminent, are favorably influenced by these injections, which may even prevent the necessity of enucleation. Corrosive sublimate introduced into the eye in this manner has been proved to be successful in irido-choroiditis, neuritis, and other serious affections the etiology of which is obscure, but especially in those which are under the influence of syphilis, rheumatism, and other diatheses; in short, in those cases in which the morbid process attacks particularly the uveal tract, because, as Pflüger has announced, the subconjunctival injections are said to have an elective action upon the choroid coat. When the deeper structures of the eye are affected,—for example, in central choroiditis and choroido-retinitis, and the process has not advanced too far,—the effect of this treatment, as Darier expresses it, may be mathematically measured, because the test-types prove its influence upon vision, and with the ophthalmoscope its power in dissipating the lesion is easily observed. When the optic nerves are affected, and have come under the influence of atrophy, not much result is to be expected; for example, in gray or tabetic atrophy there is no hope. In white atrophy, caused by former inflammatory process, an improvement may be slight; while in optic neuritis symptomatic of a serious intracranial affection, the effect of subconjunctival injections, if at all present, is purely ephemeral.

When we come to the various manifestations of syphilis upon the iris and the ciliary body, these injections yield their best results. Gummatous iritis is rapidly cured and chronic irido-choroiditis happily influenced, but acute, recent, and violent syphilitic iritis should receive general treatment, and the author believes the same to be true of every active inflammatory process of the iris and of the ciliary body, no matter what its etiology,—rheumatic, syphilitic, or otherwise.

Subconjunctival injections are contraindicated, at least for the time being, whenever a circulatory arrest renders the absorption of the medicament, on account of the obstructed lymphatic canals, either difficult or impossible. Under these circumstances the sublimate plays the part of an irritating body, more harmful than useful, causing acute pain and intense chemosis.

Having thus described in a general way the indications for the drug, Darier goes on to discuss the technique, the doses, and the complications. Very few instruments are required, but these should consist of a Pravaz syringe, the needle of which is composed of platinum

capped with iridium, very fine and sharp, so that the conjunctiva can be readily penetrated and without pain to the patient. Cocaine is first applied to the eye several times at intervals of a few minutes. When the anæsthesia is complete, the bulbar conjunctiva is seized with forceps eight millimetres from the corneal edge, and the desired quantity of liquid injected beneath a fold of it. Perfect antisepsis is required. The conjunctival cul-de-sac should be thoroughly cleansed with an antiseptic lotion, and the needle sterilized by heating it red hot before each injection. The strength of the solution has varied with different operators, the best one, according to Darier, being 1 to 1000, to which alcohol is never to be added. There is a certain amount of pain after the injection, particularly a peculiar burning sensation, which, however, does not last for any great length of time. Some œdema and chemosis follow each injection, varying according to the type of the disease, being greater if it is of such character that of itself it has embarrassed the intraocular circulation and impeded the absorption of the liquid. Sometimes, in addition to chemosis, the needle penetrates a small subconjunctival vein and an ecchymosis appears.

The usual dose of the solution already described is one division of a Pravaz syringe, or, in other words, $\frac{1}{20}$ milligramme of corrosive sublimate. Each dose must be increased according to individual peculiarities and the virulence of the disease which is under treatment. Darier advises in serious traumatisms, or in malignant, infectious ulcers, the injection of a dose several times stronger than the one mentioned, to be repeated every day or two, and the same rule applies to sympathetic ophthalmitis. Independently of these urgent cases, however, it is better to use small doses and to repeat them frequently. Beginning with one division of the syringe every two days, the quantity may be gradually increased according to the endurance of the patient.

Darier now comes to the important point of the duration of the treatment, stating that in acute cases he has often seen cure after several injections; but in chronic affections, as parenchymatous keratitis, disseminated choroiditis, chronic irido-choroiditis, etc., he has given as many as fifty or sixty subconjunctival injections. The length of treatment is regulated entirely by the results, and, as he has already pointed out, there is no organ in the body in which the results of medication can be so accurately ascertained as in the eye. In general terms, he suggests that, if after ten subconjunctival injections no good result has been obtained, it is useless to make further attempts.

Three germicidal solutions have been especially recommended in this treatment: first, corrosive sublimate; second, cyanuret of mercury; and, third, the trichloride of iodine. Of these three, Darier recommends corrosive sublimate and cyanuret of mercury, believing that trichloride of iodine is not superior to either of them. He has also made injections with the salicylate of sodium, iodide of potassium, distilled water, and glycerin, but with none of them has he obtained results comparable with those furnished by the bichloride of mercury.

There are few complications connected with the treatment. If the eye is properly prepared by antisepticizing the conjunctival cul-de-sac, and the needle sterilized by heating it red hot in the flame of a lamp, infection is unlikely, and the cases of hypopyon-keratitis which have been described must have been due to imperfections in the technique. The only complications of moment, and, indeed, they are of very little moment, are the pain produced by the possible puncture of a conjunctival nerve and the ecchymosis which may follow the injury of a subconjunctival vessel. Chemosis is present more or less constantly after each injection.

No doubt the investigation to which we have referred, and which has been undertaken by Valude to gather together the opinions of ophthalmologists all over the world as to the value of this treatment, will serve to give it its proper place in ocular therapeutics. Probably every surgeon who has tried it has been surprised at the extraordinary results obtained in a few cases; perhaps he has been equally disappointed in others. That it possesses a certain amount of value there can be no manner of doubt, but whether it will supplant older methods remains to be seen. That it should have a wide and universal trial is evident, because only by gathering together the views of unbiassed reporters, based upon large experience in widely diverse affections, can we come to any conclusion as to the exact value of the subconjunctival injections of antiseptic solutions, particularly of the bichloride of mercury.

THE TREATMENT OF SURGICAL TUBERCULOSIS OF THE EXTREMITIES BY PASSIVE HYPERÆMIA.

IN a recent number of the THERAPEUTIC GAZETTE there appeared an article by Bier (*Wien. Med. Blätter*, cvi. Jahrgang, No. 17), giving his results in twenty cases of tuberculo-

sis involving the bones or soft parts of the extremities, treated by what he terms passive hyperæmia. His method consists in applying a pressure bandage to the limb involved up to the seat of tubercular swelling; just above the latter a constriction band is applied, and, when this is possible, the resulting passive hyperæmia at the seat of disease is kept up continually until all active signs of the tubercular disease disappear; then the constricting band is removed at night and passive motion is practised during the daytime. In case the fingers and toes are involved the constriction is placed about their roots, and is relieved only for a part of the day. After the disappearance of all symptoms of tubercular trouble and after cessation of the treatment there may remain a long-standing chronic œdema.

In all, Bier has now treated some forty-three cases of joint and bone tuberculosis, involvement of the glands, of the skin, and the subcutaneous tissues of lupus, and of tubercular infiltration of the testicle and epididymis. The results in the last series of cases were quite as encouraging as in those first reported. As quite typical of the majority may be taken the one heading Bier's record: A boy, aged eleven years, exhibited a spindle-formed swelling of the right elbow-joint. Fluctuation was distinct; the articulation was fixed at a right angle; there was pain on pressure. Passive hyperæmia was practised from the 15th of March to the 26th of April. The arm could then be almost completely straightened, though rotation was still limited. There was no pain. Passive hyperæmia was kept up during nights alone for two months more, massage being practised during the day. At the end of this time the elbow was completely functional. Motion was not limited, and the arm was as strong and freely movable as ever.

In some cases, of course, the treatment had to be supplemented by iodoform injections or by direct surgical intervention. The ultimate result was, however, good in nearly all.

The explanation as to the mechanism of cure in these cases can scarcely be considered as satisfactory. Bier believes that it is to be found in the fact that the increased amount of blood to the part encourages formation of fibrous tissue and by this means limitation of the infected areas.

Heller-Kiel advances the ingenious theory that by means of this method the toxic products of the bacilli are prevented from becoming disseminated, and hence reach sufficient concentration *in loco* to act fatally upon the germs which produce them.

Bier concludes as the result of his study that the efficacy of passive hyperæmia is quite as great as, and in recent non-suppurating cases much greater than, iodoform injections. The results in lupus were not favorable.

The whole research was apparently conducted in such a true scientific spirit, and the effects, both good and bad, are reported so conscientiously, that the favorable opinion advanced by Bier as to the effect of this treatment justify its trial at the hands of the general practitioner.

THE HEALING OF INTRACAPSULAR FRACTURES.

ALTHOUGH the classical paper of Senn, published some years since, proved, so far as clinical evidence goes, that intracapsular fractures of the neck of the femur at times undergo bony union, and also showed a rational and practicable method by which such union might be obtained, and though he collected some fifty-four cases in which such bony union had taken place, the position of the profession at large has practically remained unchanged on this question, the belief still obtaining that, given a purely intracapsular fracture, bony union is never possible. This belief dates back to Sir Astley Cooper, who originally held that the rule had no exception. Later, however, he conceded that in some cases bony union might take place.

Clinical evidence alone is not sufficient to prove the possibility of union in purely intracapsular fractures, since examination of the seat of fracture through the soft parts cannot absolutely exclude the existence of a fracture which is partly extracapsular.

Lowenstein recently presented before the Medical Society of Hamburg two preparations, each showing bony union in cases of intracapsular fracture.

Senn cites many such cases, and the post-mortem evidence thus offered must be accepted as absolutely conclusive.

Gurlt and König both agree that the prognosis in intracapsular fracture is not absolutely hopeless, and the former author states that the differential diagnosis between intra- and extracapsular fracture really is of little moment, since either is to be treated with the object of securing bony union. The fact that impacted intracapsular fractures usually unite shows that the commonly-accepted belief as to non-union in these cases depending on insufficient vascularity of the parts for the formation of firm callus, and dilution of the plastic lymph with

synovial fluid, thus preventing it from undergoing organization, is not well founded. Impaction can modify the healing process only in one way,—that is, it keeps the fragments in a fixed relation to each other during the healing process, an end accomplished by none of the forms of apparatus commonly employed in the treatment of this injury. Senn, after a careful study of the subject, devised a dressing which keeps the broken fragments closely opposed to each other, almost as well as when impaction occurs. This apparatus is essentially a plaster case fixing both thighs upon the pelvis, and provided with a pad which can be screwed down upon the trochanter major of the affected side, thus keeping the fragments in close apposition. As the plaster becomes loose the pad can be made to keep up the same pressure by turning a screw. The results as published from the use of this apparatus are most satisfactory. This method has never become popular, perhaps because the proper fixing of the plaster case is often difficult, and because the profession at large firmly holds to the belief that intracapsular fractures never unite, hence the application of an elaborate dressing would seem a waste of time and ingenuity. The post-mortem showings should, however, be accepted as conclusive, and should lead surgeons to treat intracapsular fractures as though bony union were the rule rather than the exception.

Reports on Therapeutic Progress.

CONTRIBUTION TO THE CALOMEL TREATMENT OF LIVER-DISEASES.

Dr. Paul Palma reports from Von Jaksch's clinic (*Therapeutische Monatshefte*, March, 1893) some cases of liver-disease treated with calomel. He divides his cases into three groups: 1, disease of the liver with ascites; 2, disease of the liver without ascites; 3, secondary liver-disease.

In the first group he reports six cases of cirrhosis of the liver with dropsy. In four of these cases the calomel exerted a marked diuretic influence, the quantity of urine in one case increasing from 700 cubic centimetres to 6900 cubic centimetres. In two of the cases, however, in which the cirrhotic process had gone too far, there was no diuretic action. No complications but diarrhœa, which was easily controlled by opium, occurred, except in one case, in which a stomatitis, lasting a few days, developed.

Of the two cases belonging to the second group, one was hypertrophic cirrhosis and the other carcinoma of the gall-bladder with secondary cancer of the liver. No dropsy was present, and the urine was only very moderately increased under the use of calomel.

The only case in the third group was one of secondary carcinoma of the liver with atrophy, the cancer being primary in the pylorus. There was great dropsy, and the calomel exerted a powerful diuretic effect.

As to the dosage, it is most convenient to give for three days in succession three powders of three grains of calomel each, employing at the same time a gargle of chlorate of potassium.

CHLORIDE OF ETHYL.

Dr. Edgar Gans, of Carlsbad, refers to the experiments by Debove with methyl chloride as an anæsthetic, which acted by refrigeration of the part. Ethyl chloride, however, has proved more effective. It is a colorless fluid, with a pleasant ethereal odor, and boils at 50° F. It is prepared by treatment of alcohol with hydrochloric acid: $C_2H_5OH + HCl = C_2H_5Cl + H_2O$. The hydroxyl of alcohol is, therefore, replaced by chlorine.

Chloride of ethyl is obtained for use in small closed glass tubes, one end of which is drawn out into a fine capillary tube. To anæsthetize a given surface, the extremity of the capillary tube is broken off, and as the ethyl chloride boils at 50° F., the heat of the hand is sufficient to force the fluid in a fine spray upon the desired part. The tubes contain about 2½ drachms, which usually is sufficient.

The effect of the spray is first to redden the skin, and then in about a minute to render it completely white. Then a coating of ice is formed in the shape of fine snow. Usually the tube is best held at a distance of about one foot (thirty centimetres) from the spot to be affected.

The remedy is free from disagreeable odor, and no threatening symptoms occurred in Gans's cases. A few nervous individuals experience a peculiar drawing in the extremities and a feeling of confusion, lasting a few seconds.

Gans experimented upon dogs in Professor Liebreich's laboratory, and proved that the remedy, under repeated use, does not produce thickening of the skin, scaling, or gangrene. In one dog, after the use of two tubes, a thermometer showed that the subcutaneous temperature was reduced to 15° to 18° C. (59° to 65° F.).

Gans refers briefly to a number of his cases in which the results obtained were remarkable. One was a case of supraorbital neuralgia, which had persisted for six weeks with the most violent pain. One application of the ethyl chloride cured it. In another there was neuralgia of the left mammary gland, which had resisted treatment for five months. The first application caused the pain to disappear completely, but it returned next day, whereupon the application of ethyl chloride was repeated daily for two weeks; the patient has been free from pain for ten months.

In a third case, one of lumbago, in a man sixty years old, who was unable to stand erect, one application appears to have worked a cure.

In three cases of beginning gouty attacks the ethyl chloride appeared to cut short the attack.

In several cases of migraine the pain ceased immediately after the employment of the ethyl chloride.

In a case of pruritus of the scrotum, in a diabetic forty years old, whose single subjective complaint for five years had been the persistent itching of the scrotum, a single use of ethyl chloride produced freedom from itching, lasting five weeks.

THE OCCURRENCE OF PLUMBISM AMONG SAFETY ELECTRIC-LAMP WORKERS.

In the *Medical Press and Circular* for March 8, 1893, WILLIAM MURRELL, M.D., reports five cases of this artisan's disease.

It is well known that those who follow certain occupations frequently suffer from chronic lead-poisoning. House-painters are constant victims, and it would appear that in their case the lead gains entrance into the system in two ways,—by their neglect to wash their hands before taking food, and by inhaling the fine particles in the process of grinding the carbonate which forms the basis of most paints. Potters, whose duty it is to dip the pots into a solution containing lead in order to impart the necessary glaze to the ware, also suffer. It is, however, among lead-workers that the most pronounced examples of plumbism are met with. The producer of the raw material rarely experiences any injurious effect, but the smelter, who is engaged in the process of converting the metallic lead into the carbonate, or white lead, readily falls a victim. Compositors at one time suffered largely from handling type-metal containing lead. Among the file-cutters of Sheffield lead-poisoning is very prevalent, and it apparently arises from the fact that the men use a cushion of lead on which to strike the file, much metallic dust being given off in the process. In the same way leather-cutters also suffer, the leather, while being cut and manipulated, being supported on a leaden slab. Japanners rarely escape, and it appears that the japanned articles are brushed over with colors containing lead. Cases are not uncommon among enamellers, the dust raised consisting of lead mixed with a little arsenic.

These sources of lead-poisoning are familiar enough to every student of the subject, but Dr. Murrell has recently come across an epidemic of lead-poisoning occurring in the course of an occupation which, so far as known, is not generally recognized as predisposing to plumbism,—that is, the saturnism of electric-light workers. In hospital practice he has met with a good many of these cases, and was puzzled for some time as to their exact mode of origin. The men, when questioned respecting the nature of their work, were, for some reason best known to themselves, somewhat reticent, and were disinclined to afford much information. At last, however, he came across a victim who had a grievance against the company by whom he was employed, and was inclined to be communicative. The clue once obtained, the particulars were extracted from the other patients without much difficulty. It appears that these people one and all were employed in the manufacture of plates used for batteries. These plates were not simple metallic plates, but were made artificially by mixing together red lead, silver sand, and nitric acid, and then casting the composition into moulds. In the process of mixing, the hands soon became covered with red lead, the effects of which on the health of the patients were soon apparent.

THREE CASES OF ATROPINE-POISONING.

C. BINZ (*Centralblatt für Klinische Medicin*, No. 2, 1893) reports three cases of poisoning by atropine, which, with others also cited, prove that morphine may be successfully used as an antidote for atropine. The first was a boy of seven years, who took a bottle of atropine drops intended to be used in the eyes. The prescription called for $\frac{5}{6}$ grain in 160 minims of water, and he took all of this but a few drops. In a few moments he was wild, screaming, crying, laughing, rolling about, and with flaming face. The efforts to induce vomiting were fruitless, and 15 grains of tannin produced no effect. The raging condition continued undiminished for two days; then he became gradually more quiet, and on the fourth

day fell sound asleep and recovered. Nothing but the tannin was used in this case.

The second case was a three-year-old child, also poisoned by an atropine solution; the amount taken could not be learned. Poisoning occurred between 8 and 9 A.M., and the child was presented at the clinic towards noon. Its stomach was at once washed out. The child was very restless, tossing about, with twitching of the extremities, screaming and crying out; its pupils dilated, skin very red; it was perfectly wild, not recognizing its parents. A subcutaneous injection of $\frac{1}{20}$ grain hydrochlorate of morphine was given, without any quieting result. Fifteen minutes later a second dose of $\frac{1}{12}$ grain was given, and the child was soon perfectly quiet and sleeping soundly. At 5 P.M. the child had been awake an hour, and had enjoyed a drink of milk; but as he was still restless, a third dose of morphine, of the same quantity as the first, was given. Quiet followed soon, but no sleep. No further use of morphine was necessary, as the child gradually recovered.

The third case was that of a workman of fifty years, who had long suffered with sciatica. While in a terrible paroxysm of pain, his physician gave him by mistake, instead of morphine, an injection ($\frac{1}{6}$ grain) of a one-per-cent. atropine solution. The patient was soon wild, but $\frac{1}{12}$ grain of morphine given every hour gradually quieted him, and he then slept several hours. Except for great weariness, the patient was well the following day, and he has never had a return of his sciatica.

Binz does not consider morphine as suitable for use in every case, or at every stage of atropine-poisoning, but simply in the excited stage. Instead of morphine, chloral hydrate may be used, but as it weakens the heart more, it must be used with great caution.

FORMALIN.

In a reprint from the *Pharmaceut. Zeitung*, No. 22, 1893, DR. J. STAHL declares that formalin is better adapted for disinfection than any other agent. Its power of annihilating microbes is extraordinarily great, resembling corrosive sublimate in this respect; but it is relatively non-poisonous, acting aggressively only against substances of an infectious nature, and leaving intact organic or inorganic substances with which it comes in contact. Finally, it is very easily handled and cheap, and these facts will secure for it the entrance into the practice of disinfection which it deserves. A want which has been felt is therefore supplied: it might be designated as non-poisonous corrosive sublimate.

Formalin is to be preferred over corrosive sublimate not only as being non-poisonous, but also because it yields its gas readily and is nearly of the same specific gravity as the atmospheric air. The property of gaseous formalin of being absorbed by solid bodies and of being condensed as paraformaldehyde renders possible a self-acting deep penetration into the most hidden recesses, and under certain circumstances also a disinfection of places that have not been touched.

The possibilities of use which result from the properties already mentioned are so manifold that they can only be sketched here in bold outline.

For the disinfection of smooth walls, Stahl regards spraying with a half-per-cent. formalin solution sufficient. For a wall of fifty square metres, four-tenths of a litre of a half-per-cent. solution, or five grammes of a forty-per-cent. solution, are necessary. For the superficial disinfection of furniture, clothing, etc., he suggests spraying with a half-per-cent. solution. The spraying has to be carried out with the greatest possible energy.

Formalin is better adapted for steaming in closed spaces than carbolic acid, sulphurous acid, chlorine, or bromine, but whether in all cases with thorough results is yet to be proved. For the dry disinfection of more valuable objects in closed chests, such as furs, formalin will undoubtedly prove excellent, as well as for the preparation of sterilized aseptic dressings.

IODOFORM INJECTIONS IN LOCAL TUBERCULOSIS.

WOOLSEY, in the *New York Medical Journal* for February 25, 1893, gives the following directions as to the employment of this method:

Technique.—As to the technique of the injections, it is of the utmost importance to observe thorough antiseptic precaution, and the emulsions should be freshly prepared, so as to contain no iodine, and sterilized. The choice lies between a large hypodermic injection with a large needle and a medium-sized trocar, and many prefer the trocar.

In the case of abscess, the contents are generally first evacuated, and then most surgeons wash out the cavity with Thiersch's solution or something similar; and, finally, the cavity is moderately filled with the iodoform emulsion, up to one hundred cubic centimetres being

used. This is repeated every one, two, or four weeks.

In the case of a joint, if abscess is present, the above-described procedure is adopted; if there is no pus, an injection is made into the cavity of the fungous joint, and the fluid is distributed by passive motion and massage. In both cases it is well to introduce the trocar obliquely to obviate leakage after removal.

In the case of a fistula, parenchymatous injections into the walls of the fistulous tract by means of a hypodermic needle are far more effective than mere injection into its lumen.

In the case of other tubercular processes, or in organs not hollow, parenchymatous injections are made unless abscess is present, when they are treated as above described. Fistulæ are injected every week with small amounts,—two to ten cubic centimetres in the wall, joints, and abscesses; every two to four weeks with larger amounts,—ten to fifty, or even to one hundred cubic centimetres.

In the case of joints, fixation is only necessary when there is pain,—*i.e.*, in the early part of the treatment.

The later injections require more force, on account of the cicatricial contraction which has been and is going on. Krause gives very minute directions as to the place of puncture for the various joints of the body (*Archiv für Klinische Chirurgie*, vol. xli. p. 113).

Billroth's present method is different from the above, and combines operation and injection, as follows:

In the case of "cold abscesses," Billroth opens them up freely, scrapes off the abscess membrane with a tampon of iodoform gauze or large, sharp spoon, stops hemorrhage by tamponing for a time, sutures the wound tightly with sterilized silk (he lays great stress on its sterilization), and injects enough ten-per-cent. glycerin and iodoform emulsion to moderately fill the cavity. He recommends this method especially for caries of the ribs and in the extremities, and in children or adults under thirty. The division of the operation into two days (tamponing the first day) he thinks is objectionable. He adds that puncture and injection is still the best method for large congestion abscesses with caries of the vertebræ.

Cases Applicable.—The following classes of cases are applicable to this treatment, and in them it has been tried with more or less success:

1. Tubercular abscesses from a focus in bone or soft parts.

2. Tubercular joint-disease, with or without abscess.

3. Tubercular fistulæ.

4. Tubercular epididymitis and tuberculosis of the bladder.

5. Tubercular lymphadenitis.

6. Tubercular empyema, and even tuberculosis of the lung.

As to abscesses, this method is especially applicable to large deep abscesses not otherwise easily accessible, also when the patients are too feeble for a more severe procedure. It is also indicated to avoid scars. There is less unanimity of opinion as to abscesses near the surface and threatening to rupture. In the early days of this use of iodoform it was thought to be contraindicated in such cases, but not so now, except possibly where ether is used, and even then it is given as Verneuil's experience that healing is often quicker under these conditions when a sinus forms. The formation of a small sinus is no hinderance to the complete and speedy healing. It is the experience of Trendelenburg's clinic, in Bonn, that freshly-diseased parts, especially if acutely diseased, heal quickest and surest; that children give a better prognosis than adults, and that unaltered skin gives the best chances of success.

On the other hand, Billroth says that the worst and largest abscesses give the best results and fewest recurrences; therefore he is now in favor of active treatment of cold abscesses by this method, because of the danger of amyloid degeneration if they are not treated. His "open method" he also especially recommends in cases with fistulæ.

Krause treats the severest cases of joint-disease as well as the less severe, and both classes of cases show cures; though, as Bruns says as to *joint* cases, fresh cases without fistulæ, especially in children, are most favorable.

This method of treatment of empyema has been recommended by Rydgier and Bruns, especially if it be tubercular. Though but few cases of this kind have been so far reported, it seems likely to prove of great service in this worst class of cases of empyema.

Contraindications and Accidents.—Most all surgeons who have used this method report that they have seen no cases of iodoform-poisoning, and class this treatment as simple, successful, and without danger. Bruns reports iodoform-poisoning only once, and not at all in joint cases, where a less amount is always injected. Billroth saw iodoform intoxication very seldom, but advises not to increase the dose above that given above. In general the dose is small and the surface is not favorable for absorption, so that we would hardly expect iodoform-poisoning to occur often; and, in fact, no other re-

ports are given of it, but all others are careful to state that they have seen none. Krause reports one patient who died of acute general miliary tuberculosis three or four weeks after an abscess was opened and injected, also one patient died of phthisis, though the knee was improved. Such occasional results are met with in any form of operative treatment.

The only reaction after the injections is a rise in temperature of 1° to 2° C. Where it is more than this it has been attributed to imperfect sterilization of the emulsion. A part of the febrile rise has been attributed to the glycerin, but otherwise it has not been satisfactorily accounted for.

The *time* required by this method of treatment is rather long in actual days or weeks, though, as Fraenkel says, comparatively short. The procedure must generally be more or less often repeated. Some, however, report cures after a single injection, and others in four or five weeks by two or three injections. The writer has cured one large abscess in four to five weeks by two injections. The general rule, however, is, that though the symptom of pain is quickly relieved, the healing process does not begin to show itself before five to six, or even seven or eight, weeks, after two to four injections, and then healing goes on rather rapidly, the complete cure requiring sometimes four to five months.

The deduction from this is not to stop treatment too soon, either from discouragement at first or belief that the case is healed later on.

Results.—The first effect is a moderate amount of pain, not lasting over twenty-four hours generally. Then there is usually a refilling of the abscess or joint-cavity, with more or less tension.

The first sign of improvement is the relief of the pain, especially in joint cases. Then there is almost always a decided improvement in the general condition. Thus, he has seen stoppage of night-sweats, disappearance of hectic fever, improvement of appetite, and gain of flesh and strength.

The abscess or joint cavity refills with a thinner, browner pus, which generally requires a second or third tapping and injection; but after a varying interval of two to eight weeks there is a gradual or rapid shrinkage, until only a certain amount of induration remains. Motion may return completely in a joint, though in the hip there is finally generally an anchylosis. In other joints many cases of complete restoration of motion have been reported.

The results are remarkable, especially as they occur in adults as well as in children, and in cases where otherwise an amputation would have been the only operative treatment.

The results vary considerably among the various classes of cases to which the treatment is applicable.

Abscesses give by far the best results. Thus Fraenkel reports twenty cases with eighteen cures. Billroth gives sixty-three per cent. cured, and Trendelenburg finds a marked result in sixty-eight per cent. of cases. Bruns reports ten cures out of twelve abscesses from spinal caries, and twenty-four cures in thirty-five cases, whereas by former methods the statistics were thirty-five cures in a hundred and one cases. Finally, Bruns's most complete statistics show eighty per cent. of cures in cold abscesses.

Cases of fistulæ are more obstinate, and generally take longer. Cases of tubercular joint-disease show a smaller percentage of cures than do the abscesses, yet the results here are most remarkable, considering the kind of cases susceptible of cure and the results of other forms of treatment.

Bruns reports fifty per cent. of cures in all joint cases, and, by a re-examination of these cases, the cures are found to be permanent. The prognosis varies with the different joints. Thus, Krause reports cures as follows: Wrists, sixty per cent.; knees, forty-one per cent.; hip, thirty per cent.; ankle, sixteen per cent.; improvement in all cases. Trendelenburg's figures are: sixty per cent. of wrists, thirty-seven per cent. of elbows, thirty-three per cent. of knees and ankles.

It is thus seen that the best results are obtained in the wrist-joint, many cases being reported cured which would otherwise have been subjected to amputation. Next to the wrist, the knee and elbow show the best results and the ankle the worst.

PERMANGANATE OF POTASSIUM AS AN EMMENAGOGUE AND UTERO-OVARIAN TONIC.

In the *Journal de Médecine de Paris* for April 23, 1893, HOVENT is quoted as administering permanganate of potassium as an emmenagogue and utero-ovarian tonic for five to eight days before the proper period of menstruation, but it should not be continued during the flow. The dose which he administers is ½ to 1 or 2 grains three or four times a day. In order to avoid any disorder of the stomach, the drug must be well diluted with water.

THE ADMINISTRATION OF MORPHINE BY THE RECTUM.

According to the *Journal de Mèdecine de Paris*, April 23, 1893, CONDEMIN has found that the administration of from 1 to 3 cubic centimetres of morphine solution well up into the rectum is rapidly absorbed in from four to ten minutes. It is easily borne, and the action is long continued. He believes that in many instances this method of using morphine is better than using it hypodermically, because of the prolongation of its action, which he believes to be due to its escape into the blood of the general system without its being carried immediately to the liver, where it is partially destroyed.

THE THERAPEUTICS OF PNEUMONIA IN CHILDREN.

DR. A. JACOBI, in the *Archives of Pediatrics* for April, has an article on the above. He divides pneumonia in children into the catarrhal or lobular, fibrinous or lobar, and the interstitial. About two-thirds are of the first, one-third belong to the second, and only a few to the third class. The lobular is almost always, and the lobar often, preceded by bronchial catarrh. Thus much can be done to prevent pneumonia by treating the bronchial trouble, and caution, at this period, against exposure.

Acute lobular pneumonia is less serious in the early stage than the lobar form, is not so likely to be complicated by pleurisy, and there is less risk of heart-failure. It runs a much longer course, however, and in this way the prognosis is uncertain. The great danger is from suffocation.

The interstitial form is very protracted, the fever is often high, the recovery rarely complete, there being generally induration and bronchiectasis.

In all these cases insist upon absolute quiet; exclude visitors, light, and noise; keep the room at 68° to 72° F., and the air moderately moist; let the patient select his own position; give liquid food, plenty of water or lemonade; keep the bowels free. The main dangers in acute pneumonia are high temperature, heart-failure, suffocation, which may result from either the lungs or the condition of the right side of the heart.

With regard to the high temperature, the writer lays much stress upon the fact that it is continued high temperature that is specially dangerous. Antipyretic treatment is not so urgently needed in those cases where there is a morning remission. The routine habit of depressing all temperatures of 103° F. is bad. It is of more importance to watch the resistance of the system to these high temperatures. With regard to phenacetin, antipyrin, and acetanilid, they have oftener lowered temperature than saved life.

In all cases with remissions in the temperature, quinine is of great value; but it must be given during the remission. Some soluble form by the rectum is a good method. If quinine has to be used hypodermically, the best form is the carbamide. This dissolves in five parts of water, and does not cause local irritation.

The best of all antipyretics is cold. Most cases will do very well with sponging or friction with wet, cold towels. The rationale of cold bathing is that of cooling the surface. Blood is continuously coming to the surface, and in this way is being cooled. When the heart is weak and the extremities cold, no cold bath should be used. In such cases the cold bath drives the blood inward; the surface becomes colder, but the interior hotter. In these cases of cold extremities and hot interiors, a hot bath, instantly given, restores the circulation to the surface, and the temperature falls.

Weak, delicate, anæmic children do not stand the cold bath. For these cases the warm or tepid bath must take the place of the cold one. The bath can be gradually cooled down while the little patient is being rubbed. The warm packs may be used. When cold applications are used, it is sufficient to apply them to the anterior part of the chest.

Great care must be directed to the heart. In lobar pneumonia it is necessary to give stimulants at an earlier period than in the lobular form. All demand them at some time. This being the case, do not wait for heart-failure, but try to prevent it. With regard to alcoholic stimulants, the indications are not to use them in the early and acute stage of the disease, as by their use the labor of the lungs is increased. Further, the brain and kidney complications, which often exist, contraindicate the use of alcohol. Later on they are needed.

With regard to digitalis, give a large dose of from 1 grain to 4 grains, and repeat one or more times as needed. In this way the action of the drug is obtained in a few hours.

When the peripheral circulation fails and the pulse is small and weak, digitalis must be given, with some other drug, as nitro-glycerin, $\frac{1}{500}$ to $\frac{1}{100}$ grain; sodium nitrite, $\frac{1}{10}$ to $\frac{1}{4}$ grain; or tr. aconite, 1 minim, every hour or two hours, until the pulse is revived.

When the pulse is good, but the surface dusky and the nails blue, the nitrites will help

to restore the circulation. Leeching and the hot mustard bath may be used.

Strychnine may be given, $\frac{1}{30}$ grain, during twenty-four hours, to a child of one year; ammon. carb., $\frac{1}{2}$ grain to 1 grain, every one or two hours.

During hepatization, when expectoration is insufficient, the inhalation of steam with a little turpentine in it is helpful. Camphor, $\frac{1}{4}$ to 1 grain, aids expectoration. Ammonium chloride, 10 to 20 grains every few hours on a hot stove-lid, fills the room with vapor and stimulates the bronchi. This is also the time to use the warm poultice or jacket of cotton wool.

Pleural pain is best relieved by sinapism, and constant hacking cough by small doses of opium.

The interstitial form, in the later stage, should be treated with iodide of potassium and digitalis internally, iodine externally. Pulmonary gymnastics must be kept up for a long time, even years.—*Ontario Medical Journal*, April, 1893.

THE TREATMENT OF TYPHOID FEVER.

In the *Lancet* for March 11, 1893, DR. LATHAM contributes an interesting article upon the treatment of enteric fever, which forms the conclusion of a series of papers which he has published in previous numbers of the *Lancet*. The summary which he offers is so useful that we take pleasure in presenting it to the readers of the THERAPEUTIC GAZETTE.

"First, if the patient comes under observation at an early period of the disease,—that is, during the first eight or ten days,—obviously the points to aim at would be to eliminate as many as possible of the bacilli from the intestine, to paralyze or attenuate such as remain, and to eliminate or neutralize the toxic material from the economy; if these objects can be attained the result would be either to cut short the disease or to abridge its future course and render it milder. In a great proportion of cases diarrhœa sets in early, but in some there is obstinate constipation, and the most severe cases I have seen have been those in which for two or three or four days at the commencement of the disorder no action of the bowels has taken place. From what has been previously stated this is quite intelligible. If diarrhœa exists, some portion of the toxic material generated by the bacillus is swept out of the body, together with numbers of the bacilli themselves. If, however, the bowels are confined, the whole of the toxic material is absorbed into the system, producing its deleterious effects, as shown by rapid rise of temperature, etc., the bacilli themselves increasing at the same time rapidly in number. The indication, then, at this stage is to eliminate the toxic material from the intestines by acting upon the bowels and using such antiseptic remedies as will powerfully affect the bacilli.

"Now among intestinal antiseptics calomel is probably the best. It materially retards decomposition due to low organisms, and its antiseptic power is not as greatly diminished by admixture with fæcal matters as is that of other antiseptics. From its insolubility it passes into the intestines, and so comes in direct contact with the parts where its action is most needed, putting a stop to the growth of the bacilli or attenuating their virulence. Here it may be remarked that it is no new thing to advocate the use of calomel in typhoid fever. Dr. Anthony Todd Thompson used to give it; Dr. Parkes considered it was to be strongly recommended in this disorder, given not later than the tenth or eleventh day, and at no time in large doses; 1 or 2 grains twice a day was enough. Wunderlich prescribed 1 to 5 grains twice daily, which Dr. Parkes considered too large a dose. Sir William Aitkin writes, 'In the great majority of cases where it can be given during the first week and before the occurrence of much diarrhœa the course of the disease is rendered milder and shorter.' But these high authorities gave it in order 'to influence the elimination from the intestinal glands by direct local action on the intestinal membrane.' The late Dr. George B. Wood, of Philadelphia, in his 'Practice of Medicine,' bears testimony to the benefit to be derived from mercury about the seventh or ninth day of the fever, and he held that 'it tends in some degree to arrest the progress of the disease in the glands of Peyer and to promote resolution of the inflamed patches.' What I suggest is that it acts beneficially by attenuating or arresting the development of the typhoid and other bacilli (Bienstock's bacillus, bacterium coli commune, etc.) in the intestines, and so removing the cause of the disease. The toxines of these bacilli have already been absorbed into the blood-stream; but they will soon be eliminated or possibly in some way, as yet not clearly made out, rendered innocuous if the further supply of them be cut off. By cutting short the disease I do not mean that the patient passes at once from a state of disease to that of health. That is impossible. But what I do mean is that the specific process—the development, that is, of the specific poison—is put a stop to. The swelling of the intestinal glands,

the congestion of the intestinal mucous membrane, and the swelling of the mesenteric glands associated with this specific poison have taken place, and, though the specific disease is cut short, these morbid conditions, which by themselves would give rise to pyrexia, diarrhœa, etc., require some days before they pass away and the parts regain their normal states. It takes some days after the disease is cut short to repair the damage done by the poison.

"If, then, a patient comes under observation during the first week, and there is no diarrhœa, I would recommend the administration of 5 grains of calomel, the dose to be repeated the following day if not more than two copious evacuations are produced by the first dose. If there be slight diarrhœa, a quarter of a grain, or half a grain, or a grain of opium may be added,—just sufficient to check excessive peristaltic action. If the opium stops this action altogether it will do harm. If diarrhœa is a marked symptom at the commencement of the disorder, or if violent meteorism, albuminuria, or great anæmia exists, I should discard the calomel and use one or other of the remedies to be referred to directly. Where calomel acts beneficially the temperature is reduced, the beneficial remission is persistent, and a considerable shortening of the whole febrile period takes place. The cases in which it has seemed to me to act most satisfactorily have been those in which its administration about the sixth or seventh day has been followed by three or four copious greenish evacuations, a lowering of the evening temperature from 104° or 104.5° to 103° F., and subsequently from the eleventh or twelfth day the evening temperature gradually declining until about the nineteenth or twentieth day it reaches a normal point. Liebermeister gave three or four 10-grain doses in the early stages of the disease, and was satisfied that he caused the attack to abort in a number of cases. I have never given such large doses. Further experience, however, may show their utility and indicate the conditions in which they may be safely employed. Still, it appears to me that when by the sixth or seventh day the evening temperature has reached 104° or 105° F., the damage done is so great that, though the typhoid bacilli are destroyed and the specific disease is cut short, yet, for the reasons I have already given, the patient's evening temperature will not reach the normal point earlier than the nineteenth or twentieth day. After giving one or two 5-grain doses of calomel, the remedy may be given on subsequent days in smaller quantities,—1 or 2 grains once or twice a day in combination with opium and ipecacuanha,—endeavoring to adjust the quantity of opium so that there should be one, two, and certainly not more than three evacuations daily, and suspending the use of the opium at once if it paralyzes the peristaltic movement of the bowels and leads to increased tympanites. Or the following may be employed: From three to five grains of mercury with chalk, two grains of compound ipecacuanha powder, with a sufficient quantity of confection of roses as pills, or three grains of blue pill may be substituted for the gray powder.

"With regard to the effects of mercury in the treatment of continued fever, it must be borne in mind that in this disorder the gums do not readily take on the mercurial action. This specific action must, however, be carefully looked for, and when symptoms of mercurialism appear the remedy must be suspended or given at longer intervals. As soon, also, as the evening temperature of the patient shows continuous daily remissions I should suspend the remedy or lessen the dose, according to circumstances. Upward of fifty years ago, Dr. Peter Mere Latham compared the mercurial treatment with different modes of practice in different cases of the same epidemic. 'Finding one season that his wards were full of fever, while yet its type was so mild that scarcely any died, he thought this a favorable opportunity for trying whether mercury had any beneficial operation upon the disease. Accordingly, he treated half his cases with small doses of mercury with chalk and the other half with the liquor ammoniæ acetatis and so forth, and no mercury, and he found that the patients in the first of these classes were, on the average, convalescent sooner than those in the last.'

"Ipecacuanha is a very useful addition to the mercury, as in small doses it retards the peristaltic action of the intestines and lessens the secretion from the mucous membrane. It may do more than this: the beneficial action of large doses in dysentery is very striking and has not as yet been explained. I am not at present prepared to express an opinion upon what was once the favorite practice with physicians, of giving an emetic of ipecacuanha at the onset of a fever. The mode of action of this drug in large doses, independently of its emetic action, requires further investigation. Sir Thomas Watson, in discussing the treatment of fever, says, 'Perhaps emetics may, in the present day, be too much neglected. I have no notion of their stopping the fever; but when given early, especially if gastric disturbance be a prominent symptom, they are sometimes followed by a marked abatement of many morbid sensations.

"It is astonishing," says the observant Sydenham, "how it happens that a vomit which does not produce either a large or a morbid discharge from the stomach should so materially relieve the nausea, restlessness, anxiety, and furred tongue of the patient."'

"After the end of the second week of the disease constipation is to be carefully guarded against. The late Dr. Todd wrote, 'Restrain diarrhœa and hemorrhage in typhoid fever, and when you have fairly locked up the bowels keep them so . . . for four or six days, or even longer.' To carry out the latter suggestion is, I think, most prejudicial, and for two reasons. In the first place, there is allowed a greater absorption of the toxines from the alimentary canal, and it will generally be found that with constipation the temperature of the patient rises; in the second place, by allowing an accumulation of fæces, especially in the lower part of the ileum, the risk of perforation taking place is very materially increased; the intestine is put on the stretch, and if there be a deep ulcer the peritoneal covering may give way. In some animals, it will be recollected, it was only after the intestinal peristaltic action had been stopped that Seitz succeeded in producing typhoid fever. I think it best where there is a tendency to constipation to secure at least one daily evacuation, and, if by means of small doses of calomel or gray powder this is not effected, then to administer daily an enema of about half a pint of soap and water.

"If there be too copious or excessive diarrhœa this must be restrained, and the best remedies are the subnitrate of bismuth and tannic acid. The subnitrate of bismuth acts beneficially in two ways: first of all, it is a good antiseptic when brought in contact with the surface of substances, as is seen by its preventing any offensive discharge when sprinkled over fresh wounds.* Owing to its insolubility, it exerts little antiseptic effect when added to liquids. Its antiseptic effect may be due in some measure to its slowly giving off nitric acid, which is an energetic bactericide; but it possesses also another special action in intestinal mischief. It was found by Gosselin and Heret,† from experiments made on rabbits, that the action of sulphuretted hydrogen in the intestines gives rise to violent peristalsis. If, then, this gas, as the result of the putrefactive changes, is present in excessive quantity in the intestines, on administering a salt of bismuth the gas is readily absorbed by its forming sulphide of bismuth, and so the increased peristalsis subsides. The subnitrate, when pure, has no irritant property, and can be administered internally in very large quantities without injury, though when applied in large quantities to external wounds so much may be absorbed as to cause poisoning,* characterized by acute stomatitis, followed by intestinal catarrh, etc. The liquor bismuthi et ammoniæ citratis is also undoubtedly capable of acting as a violent gastro-intestinal irritant. In typhoid fever, therefore, the insoluble subnitrate alone should be used in doses of 15, 20, or 30 grains three or four times a day or oftener, according to circumstances. In tuberculous diarrhœa much larger doses are often given with the happiest results. Monneret gave as much in these cases as an ounce during the day. He says, 'In the last seven years during which I have administered the medicine in tuberculous diarrhœa, I have seen many persons who appeared to have but a few days to live cured of their diarrhœa, so far as to be able to take food, gain flesh and strength, and leave the hospital under an impression that they were cured.'‡ In the diarrhœa of children who are being weaned or are fed artificially this remedy acts very satisfactorily, and the explanation of its action in all these cases must be sought for in its bactericidal properties.

"As stated in the first part of this paper, the addition of subnitrate of bismuth to various media seems not to stop the growth of the typhoid bacillus. It grows in them just as readily as in media to which .25 per cent. of carbolic acid has been added. It may be that the bismuth diminishes the virulence of the bacterium coli commune, the products of which, as has been already pointed out, may prepare the soil for the typhoid bacillus. This is a point on which further investigations are necessary and will be made. Of course it is very necessary in giving the remedy in large doses, especially in typhoid fever, to be quite certain that it contains no arsenic, an impurity which unfortunately exists in many specimens. Reinsch's test furnishes a rapid means for doing this.

"In tannic acid also we have a useful remedy in the diarrhœa of typhoid fever. It has no effect on the peristaltic movement of the bowels, but it diminishes the secretion from the glands, renders the fæces more consistent, and in large doses destroys the peculiar fæcal odor. It pos-

* See Kocher, *Volkmann's Klinische Vorträge*, No. 224.

† *Centralblatt für die Medicinische Wissenschaft*, 1886, p. 374.

‡ *Bulletin de Thérapeutique*, vol. iv. p. 267.

sesses bactericidal properties, and so checks putrefaction and removes unpleasant odors, but it is inferior in these respects to other agents, as strong solutions are necessary for the purpose. It may be given (best as pills) in doses of from 3 to 5 grains twice or three times a day, alternately, if necessary, with the subnitrate of bismuth, if there be excessive diarrhœa and tympanites. Where the latter is a prominent symptom at the end of the second or beginning of the third week of the disorder, the use of oil of turpentine is sometimes very serviceable. Not only does it lessen secretion from mucous membranes,* but it puts a stop to putrefactive and fermentative processes. This may be due to the turpentine ($C_{10}H_{16}$) itself, but the bactericidal properties are intensified by the peroxide of hydrogen and the ozone which the oil, after exposure to air and light, is found to contain. The late Dr. George B. Wood, of Philadelphia, Dr. Graves, and Dr. Murchison have recommended this remedy. Dr. H. C. Wood says, 'There are two conditions or stages in which it is especially useful; indeed, is of incalculable service. About the end of the second week the tongue sometimes becomes very dry, red, chapped, perhaps coated in the centre with a brownish fur, and at the same time marked meteorism develops; 10 drops of turpentine every two hours during the day and every three hours during the night will in the majority of cases relieve the bad symptoms noted. . . . When convalescence is protracted, when there is a constant tendency to the recurrence of diarrhœa,—when, in other words, the ulcers of Peyer's patches are slow to heal,—turpentine acts almost as a specific.'† If albuminuria exists, however, the use of turpentine is contraindicated. Turpentine is also a most valuable remedy in intestinal hemorrhage. John Hunter was one of the first to recommend its use. He says, 'I have seen it immediately stop vomiting of blood from the stomach when all other means had failed; . . . it is the best, if not the only, styptic.'

"Another remedy which may be used with advantage in the second and later weeks of typhoid fever is β-naphthol. It is one of the most powerful antiseptic agents, possessing three times the strength of carbolic acid or iodoform and four times that of creosote, and, being almost insoluble, is one of the best agents for disinfection of the intestines. When administered in typhoid fever it deodorizes the stools, lessens the tympanites, and renders the tongue moist. It may be given in doses of from 3 to 5 grains every two, four, or six hours, according to circumstances. If there be profuse diarrhœa, it may be given alternately with subnitrate of bismuth.

"Solution of chlorine is said to act beneficially when administered in this disorder, and its use has recently been strongly recommended by Boyd.‡ Sir Thomas Watson says, 'For some time past I have been in the habit of giving to all my fever patients a drachm of the chlorate of potassium dissolved in a pint of water as a daily drink. Without being able to tell you precisely in what respect, in what degree, or in what way this salt appears to do good, my own impression is strong that it does exercise some favorable influence upon the general character and course of the disorder.' I suggest that the beneficial effect is due to the decomposition of the salt, chlorine and peroxide of chlorine being liberated; and to promote this decomposition I recommend the addition of one drachm of dilute hydrochloric acid to be added to the solution.§ This remedy may be used alone or in conjunction with small doses of calomel, but not with any of the other remedies referred to in this paper.

"As regards antipyretics, such as phenacetin, antipyrin, etc., my experience does not allow me to place much reliance upon their use. Occasionally a single dose or two have appeared to act beneficially, but in most cases the reduction of temperature has soon been followed by a rise to a higher point than before. In fact, the remedy seems to be directed only against one particular symptom, and though the body-heat is temporarily reduced, the typhoid poison, toxine, or what not, which causes this symptom is all the while accumulating in the blood, and produces its full effect in spite of the remedy. The hyperpyrexia must, however, be controlled, and cold sponging and the cold bath are, in my opinion, the most reliable means for doing so. Possibly during the reduction of the temperature some portion of the typhoid poison may be eliminated through the kidneys or the skin, and the condition of the patient improved. It seems to me that what we are most in want of just now is a remedy which will either promote the elimination of the typhoid poison from the blood through the usual channels or act as an antidote when injected into the blood. Possibly the serum of

* Rossbach, "Festschrift der Medicinischen Facultät zu Würzburg," 1882, p. 42.

† H. C. Wood's "Therapeutics," p. 734, 1888.

‡ *Lancet*, March 26, 1892.

§ The decomposition is as follows: $4KClO_3 + 12HCl = 4KCl + 6H_2O + 3ClO_2 + Cl_2$.

immune animals may be shown to have those effects; at all events, the results of experiments made in this direction, alike with regard to typhoid fever, to diphtheria, and to tetanus, would lead us to hope that most important therapeutic agents are about to be brought into service for the treatment of these disorders.

"Lastly, a few words as to diet and stimulants. In my opinion the best food of all in typhoid fever is milk diluted with water, the dilution being carried only so far that no curd or undigested milk is to be seen in the evacuations. Five ounces of milk with one or two of water may be given every two hours. To feed a patient oftener, unless there are special circumstances, is injudicious. A larger quantity of milk may be given if the patient seems to require it and if he can digest it. If necessary, the milk may be peptonized; perhaps in the later stages of the disease this may be called for, but in the earlier stages it is generally unnecessary. Soups and beef-tea are frequently given; but they are much less nutritious than milk, and not infrequently they tend to increase the diarrhœa. Now, though the typhoid bacillus can be cultivated in milk,* other intestinal bacilli do not appear to thrive upon it; and in individuals fed exclusively on milk—children, for instance, at the breast—the fæces contain only the bacterium coli commune. Bienstock's bacillus—the bacillus putrificus coli—appears only when other kinds of animal diet are taken. A milk diet also, as it produces no irritating effects on the intestinal tract, may contribute less towards increasing the virulence of the bacterium coli commune than animal soups, etc., and perhaps herein lies the explanation of why the latter may be provocative of diarrhœa. This, also, may perhaps explain the reason why relapses are so readily brought about in cases of typhoid fever by the too early administration of solid or semi-solid animal food. Imperfectly digested, it may irritate the alimentary canal, and either the altered secretions or the undigested food itself may furnish material for increasing the virulence of the bacterium coli commune, the toxines of which then prepare the soil for reviving the attenuated and enfeebled typhoid bacilli, which are even at this time still tenanting the intestinal glands.† As regards the administration of alcohol in typhoid fever, it is unquestionable that many cases do extremely well without its aid, and unless its use is clearly indicated patients are better without it. Alcohol is clearly indicated when there is prostration, with a feeble and soft pulse, the extremities cold, the tongue dry and brown, if there be stupor or low delirium, and especially if the impulse of the heart's apex is diminished and the first sound of the heart is feeble. Then a small dose of wine or spirit should be administered, the result watched, and the dose increased, diminished, or discontinued, according to its effect. Long ago the following rules were laid down by Dr. Armstrong, and indorsed by Dr. Graves, as to the propriety of persevering in the admintering of wine in fever, and no better ones can be framed: '1. If the tongue become more dry and brown, it does harm; if it become moist, it does good. 2. If the pulse become quicker, it does harm; if it be rendered slower, it does good. 3. If the skin become hot and parched, it does harm; if it become more comfortably moist, it does good. 4. If the breathing become more hurried, it does harm; if it become more deep and slow, it does good. 5. If the patient become more and more restless, it does harm; if he become more and more tranquil, it does good.'

"Such, then, are some of the remedies that appear to be useful in the treatment of typhoid fever. They are nearly all old remedies,—empirical,—their use suggested by the keen clinical observation and experience of the physicians of a by-gone age. The scientific investigations of the present day are now teaching us how to employ these same remedies with greater precision."

* Wolfhügel and Riedel, *loc. cit.*

† *Vide ante*, Sanarelli.

ON THE TREATMENT OF ANÆMIA AND CHLOROSIS BY THE CHIEF IRON PREPARATIONS COMMONLY IN USE.

In a paper with the above title, contributed by Dr. Andrew Smart in the *Lancet* for February 25, 1893, the following conclusions are reached:

1. *Sulphate of Iron*—Of the varieties of iron used in the trials here recorded, the best results have been obtained from the sulphate. This accords with previous experience. It is the preparation which undoubtedly possesses the greatest therapeutical activity, and the one which in the different varieties of the disease and constitutional differences of the anæmic patients may most uniformly be depended upon for satisfactory results. In anæmic patients who suffer markedly, as many of them do, from atonic dyspepsia, and in whom consequently the hydrochloric acid is either greatly

deficient or absent, it is of great advantage to their recovery to prescribe from 15 to 25 minims of dilute hydrochloric acid shortly before meals, the iron salt being taken shortly after meals. But, on the contrary, to those patients whose stomach complaints are of an opposite nature, being due to excess of acid (pyrosis), acid in any form cannot be given; the substitution of 10 grains each of bicarbonate of sodium and carbonate of potassium before meals will be of material assistance to the stomach by inducing tolerance of the iron and thereby expediting recovery. In assigning the first place to the iron sulphate as a remedy, the physician should be guided by the whole of the circumstances connected with each of the cases in which the trials are made. As a remedy, it is exceedingly active in restoring the deficient corpuscles, alike in their number and character, and is also notably active in restoring the hæmoglobin in chlorosis.

2. *Carbonate of Iron* (*Saccharine*).—Numerous trials with this preparation were uniformly of a favorable character in the different types and stages of the disease in which it was given. It is invariably well tolerated, whatever be the nature of the dyspepsia from which the patient suffers. It was given in doses varying from 20 to 30 grains thrice daily during or immediately after meals. On these grounds he considers it entitled to rank as the second best therapeutic iron.

3. *Protochloride of Iron.*—This preparation was prescribed in the form of the syrup in 1-drachm doses thrice daily after meals. Each drachm of the syrup contained seven grains of the protochloride. As during its administration it repeatedly brought on nausea, and had consequently to be suspended for a time, it would be better to avoid this drawback by giving it at the commencement in smaller doses, increasing it gradually to the 1-drachm dose, as mentioned above. Making allowance for the delay caused in this way by the suspension of the remedy and its liability to induce intolerance, it is entitled to at least hold a third place in the grade of efficacy of these remedies. Recovery under its administration is otherwise in every respect satisfactory and complete.

4. *Phosphate of iron* yielded excellent results in only some of the patients treated by it, but in others it apparently failed, its effects being only appreciable after considerable protracted treatment. The beneficial character was apparent in those types of the disease in which there existed constitutional conditions allied to neuroses.

5. *Iron Protoxide.*—This iron in some cases yielded only negative results, but in other cases its effects were satisfactory. This difference in its effects may depend upon individual peculiarities of constitution. It cannot, therefore, as a remedy, be relied upon in all cases.

6. *Arsenic.*—This remedy when combined with iron is evidently useful as an alterative, but, as the result of the trials made with it as the sole remedy showed, it did not appear to exert any direct or appreciable effect on the renewal of the red blood-corpuscles and hæmoglobin in the cases of symptomatic anæmia and chlorosis in which it was tried. When, however, combined with an iron, especially the sulphate, it was apparent that the efficacy of the iron was enhanced by the combination.

7. In pernicious anæmia, however, it was well seen in one case that arsenic exerts a distinctly noticeable effect in promoting recovery alike of red blood-corpuscles and hæmoglobin. Although iron was long and freely exhibited in one case, no evident effects of a constructive kind were produced upon the corpuscles and hæmoglobin until arsenic was added to the treatment, and not even then until full doses (20 to 30 minims daily) had been continued for some time. It is, however, rare, and indeed exceptional, in pernicious anæmia, to be able to administer arsenic in almost any dose, except the smallest,—that is, only a few minims daily,—on account of extreme intolerance of it, so that in the majority of cases it is practically out of account as a remedy.

8. It is to be observed that in several of the cases referred to the red corpuscles numerically exceeded—in some instances by 2,000,000 per cubic millimetre—the usual standard of 5,000,000. This excess having been found repeatedly, the author is led to believe that by the treatment being continued a similar result would have been obtained in most, if not in all, the cases. It would appear from this discrepancy that an estimation of red corpuscles at 5,000,000 per cubic millimetre is too low a standard.

9. On the other hand, speaking with reference to the hæmoglobin, Smart observes that he has never yet succeeded in raising the hæmoglobin to a standard of one hundred per cent. The highest obtained has never exceeded ninety per cent., and that amount only in instances of exceptionally robust health. His experience, therefore, leads him to believe that eighty per cent. is a good health standard; and that seventy per cent, or even under, may be taken as a fair average estimate at which patients may be discharged from hospital treatment, pro-

vided that the red cells are over 4,000,000 per cubic millimetre. It would appear from these results that our views in regard to the relative estimation of the red corpuscles and hæmoglobin require to be modified in accordance with these trials.

10. He has repeatedly had occasion to notice certain differences between symptomatic anæmia and chlorosis, which he believes have not heretofore been referred to, but which are of importance as diagnostic signs. In the former, the red cells and hæmoglobin do not bear the same definite relation to one another in their decrease and increase which may be observed in symptomatic anæmia. He has several times recorded cases of advanced chlorosis in which there was present a high numerical standard of red corpuscles (over 5,000,000 per cubic millimetre), while at the same time the hæmoglobin did not exceed twenty-five per cent. Such cases might not improperly be designated hæmoglobin anæmia, in the same sense that we speak of a pernicious anæmia as corpuscular. The low standard of hæmoglobin in chlorosis represents the chief pathological feature in that disease as do the reduced numbers and defective morphological characters of the red globules in pernicious anæmia. In consequence of the comparatively slow recuperation of the hæmoglobin in chlorosis, the recovery of these cases is longer delayed than in those of symptomatic anæmia, and, besides this, there is observed in the red globules a decided proclivity to undergo morphological degeneration. These special differences lead us to regard chlorosis pathologically as a graver type of anæmia than symptomatic anæmia, although at the same time it specifically differs from the pernicious kind.

11. The author again reverts to the very severe type of anæmia referred to at the outset as being under treatment by hydrochloric acid as the sole therapeutic remedy. Many anæmias doubtless originate in defects of the primary gastric digestion caused by either deficiency or complete absence of free hydrochloric acid in the stomach, the consequence of which is that the proteids not undergoing normal metamorphosis are largely thrown out of the system as waste and lost. This method of treatment by hydrochloric acid can only be of use in cases in which there is present that condition of atonic dyspepsia in which the hydrochloric acid is markedly deficient or entirely absent. This type of atonic dyspepsia is characteristic of a large number of anæmias at the commencement of as well as throughout their entire course. During the forty-two days the patient was under treatment by hydrochloric acid the red corpuscles increased from 2,500,000 per cubic millimetre to 4,200,000 per cubic millimetre, and during that long period the hæmoglobin only rose from thirty per cent. to thirty-six per cent. The patient at this stage of incomplete treatment left the hospital of her own accord. It was evident, however, that, while longer-continued treatment would have raised the corpuscles to 5,000,000 per cubic millimetre, it would not have materially increased the hæmoglobin from the low standard at which it had apparently become stationary. The result of this clinical experiment, as that of every other, proves that iron in some form is absolutely indispensable in the treatment of chlorosis, as well as of symptomatic anæmia, to effect complete recovery.

12. In each of the anæmias here recorded there coexisted chronic constipation, and the urine in each case yielded the roseate color, with nitric acid, referred to by McMunn in his "Chemistry of the Urine" as an indication of the destruction of red blood-cells. To what extent, if at all, this color reaction indicates blood destruction through the agency of reabsorbed toxic materials from the prima via, as Sir Andrew Clark suggested, remains to be determined by further investigation.

The following anatomical and pathological distinctions have been suggested in the course of these trials as marking off diagnostic differences between the three grades of anæmia: 1. In symptomatic anæmia there exists a constant proportional relation between the number of red corpuscles and the amount of hæmoglobin. They diminish relatively during the course of the disease and increase relatively during recovery, the iron being deficient as to the whole blood and each cell relatively. 2. In chlorosis the relation between the number of red corpuscles and the hæmoglobin is entirely broken. The hæmoglobin is markedly deficient relatively to each cell and to the whole blood. The low relative amount of hæmoglobin is the chief pathological determining feature in chlorosis, and points to the low amount of iron, which, in this type of the disease, is *par excellence* to be regarded as the specific remedy in its treatment. 3. In pernicious anæmia the normal relation between the red cells and the hæmoglobin is also disturbed. The iron is in excess in each cell and also in proportion to the whole blood. The great diminution in the number of red corpuscles and the great relative excess of the hæmoglobin in relation to these and to the whole blood are the distinguishing features in this anæmia, so that, as chlorosis may

be regarded as a hæmoglobin anæmia, pernicious anæmia may be viewed as a red corpuscular anæmia, that being the chief point of distinction between them. The excess of iron present in the blood of pernicious anæmia plainly contraindicates its employment in the treatment of that disease, except in small quantities, as an alterative. Arsenic (Fowler's solution), when tolerated and continued by a patient suffering under pernicious anæmia, is the preferable remedy. It is, however, only borne in certain cases, and in every case the toleration of it is to be acquired by giving it in small doses at the beginning and gradually increasing it. Quinine is markedly useful in that group of pernicious anæmias in which there is splenic enlargement, and its beneficial effects are enhanced when combined with moderate doses of iron. The best drug in such a case is the citrate of iron and quinine given in full doses. Smart's recent experiences in connection with the treatment of pernicious anæmia by the transfusion of healthy blood is leading him to attach much importance to that mode of treatment.

THE USE OF NERIUM OLEANDER AS A CARDIAC TONIC.

OEFELE (*Revue Internationale de Bibliographie Médicale*, April 10, 1893) has employed nerium oleander in seventy-five cases, consisting of valvular diseases of the heart following rheumatism, fatty degeneration of the heart, nephritis with cardiac phenomena, arhythmia, and nervous palpitation.

As a general rule, he found that nerium oleander has similar effects to digitalis. Toxic symptoms are very rare, but sometimes nausea, with a tendency to vomiting, diarrhœa, and other disagreeable gastro-intestinal symptoms, manifest themselves after full doses of the tincture.

The action of the drug is rapidly manifested, lasts for a considerable time, and consists in the slowing of the pulse, which becomes more regular and strong. The respirations are less rapid. The flow of urine is abundant, and there is also an increase in excretive matters in it. The drug does not produce constipation, but, on the other hand, seems to promote it. Palpitation disappears, and with it the œdema and dyspnœa; finally, the organism becomes accustomed to the drug, and it is necessary to increase the dose.

The diuretic properties of oleander have been found to be very energetic. It certainly provokes peristaltic action of the intestines and stimulates the blood-vessels. Oleander is, therefore, indicated in affections of the heart and kidneys, particularly in the complications of a rapid pulse which is irregular and feeble, where palpitation, œdema, or dyspnœa is present, and it acts as well in young subjects as in older ones. It is also of value in affections of the myocardium and atheroma of the blood-vessels.

It is contraindicated in the presence of diarrhœa and vomiting. The author has administered oleander for as long a period without stopping as twenty-five days, and in one case for forty-seven days, with short intervals with small doses. The effect of the drug passes away about ten to fourteen days after it is stopped. The dose which he considers large is 7 grains a day. Frequently, however, 2 to 3 grains are sufficient. A very active preparation, preferable in many instances, is the infusion of the fruit, which is the most toxic part of the plant. For prolonged use, a tincture in the strength of ten per cent. is perhaps the best preparation, and 10 to 20 drops of this preparation may be given two to three times daily. A powder of the flowers may be given in the dose of 1 to 3 grains in twenty-four hours.

THE VALUE OF ANÆSTHETICS IN LABOR.

In the Philadelphia *Polyclinic* for April 15, 1893, DR. E. P. DAVIS contributes an article on this interesting subject.

It would seem that a statement beyond dispute is that the use of anæsthetics is clearly indicated in the majority of cases of labor. If anæsthetics are agents designed to relieve pain, it is difficult to conceive of a condition more appropriate for their use than is labor. The physical and mental distress which frequently accompanies this physiological function certainly demands the employment of agents similar to those which relieve the patient of suffering during a surgical operation. The prejudice against the use of anæsthetics in labor is a remnant of the old superstition which taught that it was wrong to interfere with natural suffering, a belief fortunately long since abandoned.

Many shrink from the use of anæsthetics through fear of the depressing influence of those agents upon the action of the heart and their supposed influence in promoting post-partum hemorrhage. To those who are not experienced in diagnosis, the rapid, small pulse of an excessively nervous patient seems a contraindication to the employment of an anæs-

thetic, the inference being that such a pulse is indicative of a diseased heart. If physical examination of the heart be made in these cases, there is generally found no evidence of valvular disorder or extensive pathological lesions of the heart-muscle. When such a pulse is accompanied by the hysterical globus and protestations on the part of the patient that sudden exertion or fright causes embarrassed respiration, the casual observer may be deceived.

Even in cases where valvular lesions are present in pregnant women, an anæsthetic has been shown to be a most efficient aid in promoting speedy and successful labor. If we recall the physiology of labor, we obtain a rational indication for the use of anæsthetics. The nervous supply of the uterus is such that this organ is capable of acting in a rhythmical and efficient manner without the direct stimulation of voluntary impulse; on the other hand, the action of the uterine muscle may be inhibited by severe mental impressions, whether of pain, anxiety, or surprise occasioned by an unexpected happening.

The cessation of labor pains following the arrival of an unknown and unexpected physician or the entrance of a strange nurse into the patient's room is a familiar example of this inhibitory action of the cerebrum. A further example is found in the cessation of labor pains in nervous patients who suffer exceedingly during labor. The word pain must here be employed in its usual meaning of conscious suffering, and not with reference to uterine contractions. In these cases the conscious suffering or pain experienced by the patient is so great that cerebral inhibition temporarily stops the contractions of the uterus. It will, therefore, be observed that an agent which temporarily removes the inhibitory action of the cerebrum leaves the ganglionic centres of the spinal cord free to furnish the uterus with the normal stimulation essential for rhythmical contraction of the uterine muscle.

In prolonged and difficult labor some of the greatest dangers which threaten the mother and child may be lessened by the skilful use of anæsthetics. The element of shock may be thus lessened or prevented. Exhaustion of the uterine muscle, the greatest predisposition to hemorrhage, is far less frequent when anæsthetics are properly employed. Injurious pressure upon the child less often occurs when the forces of labor are regulated and controlled by partial anæsthesia. The facility afforded in diagnosis and operative treatment by the physician following the use of an anæsthetic is a fact too familiar to require discussion.

The disadvantages of anæsthetics—namely, their depressing influence and tendency to favor post-partum hemorrhage—depend upon the method of their use. If pushed to complete and profound anæsthesia, the patient, of course, is depressed, the uterus will contract imperfectly, and serious complications may be directly caused or induced. But this is no more true in the practice of obstetrics than in the practice of surgery. The careless administration of an anæsthetic during a surgical operation may result in a condition of depression which may oblige the surgeon to temporarily discontinue the operation; oozing and secondary hemorrhage are favored by such improper anæsthesia, and certainly the surgeon does not abstain from the employment of anæsthetics because their improper use complicates his practice.

A further, although less important, advantage gained by the use of anæsthetics during labor is the diminished tendency to laceration and injury to the birth-canal of the mother. It is often possible to so conduct a patient's delivery as to avoid extensive injury by the relaxing effects of an anæsthetic. In addition, at the moment of delivery the patient may be kept in a manageable state and spared the suffering incident to the termination of labor.

In prolonged and difficult cases of labor where no great disproportion exists between the pelvis and the fœtus, an anæsthetic will often prevent the necessity for the use of forceps. This may be considered a disadvantage to the physician, as diminishing the opportunities for the exercise of his operative skill and hence lessening his revenue from practice, but, in the interests of mother and child, the advantage to them is considerable. An illustration of our meaning may be found in the following case:

A multigravida of deficient muscular and bony development, but of highly-nervous organization, was found to have a pelvis symmetrically contracted in all its diameters; the fœtus was in normal presentation and position, —namely, its back to the mother's left side, its head presenting at the brim of the pelvis. The history of previous confinements showed that the usual increase in the size of the second and third children had been observed, the present pregnancy being the fourth. Six weeks before confinement the patient was carefully examined by pelvimetry, palpation, and auscultation. It was then found possible to bring the head to engage by gentle pressure at the brim of the pelvis. A prognosis of possible sponta-

neous labor was made, and the pregnancy allowed to go to term. The first stage of labor was of considerable length, its exact duration not being ascertained, as the patient concealed the occurrence of labor pains. Early in the second stage of labor the head engaged at the brim of the pelvis, but its descent was delayed. The element of conscious suffering was very considerable, and seemed to inhibit the best action of the uterus. The patient naturally assumed a sitting or semi-sitting posture until fatigue compelled her to lie down. Chloroform was then inhaled at the beginning of each pain, under which the pains became strong and efficient, and the head passed the pelvis brim without especial difficulty. A few pains brought the birth of the child, and the subsequent course of the labor was without incident.

While the child was passing the brim of the pelvis, pressure was made above the pubes downward and backward upon the fœtal head, and the uterus was roused to contraction by gentle friction. The uterus contracted vigorously after delivery, the patient suffering from after-pains for a considerable time. It was thought that possibly clots had accumulated in the uterus, causing the after-pains, and hot antiseptic douches were given to remove such clots, but they proved to be absent, and the lochial discharge was normal in character. Examination of the child showed that its head was proportionate in size to the mother's pelvis, its diameters corresponding very closely to those ascertained by pelvimetry.

We have in this account of what is apparently a normal labor certain pathological factors of direct practical interest: First is the contracted pelvis, whose diameters, although slightly lessened, were yet sufficiently reduced to seriously interfere with the course of labor and increase its dangers. In addition, there was present a marked deficiency in muscular development, accompanied by an abnormally sensitive nervous system, which predisposed to muscular exhaustion and its accompanying complications. Then, as a factor influencing the patient's mental condition, we had the dread of labor and fear of anæsthesia resulting from a diagnosis incorrectly made by a former medical adviser of cardiac disease, and hence danger in the use of an anæsthetic. The combination was certainly sufficient to have occasioned serious complications during labor. We believe that the scale between normal and complicated labor was turned by the careful use of the anæsthetic, and have no doubt that the experience of others amply bears out our own in this direction.

In the more serious complications of labor, requiring operative procedures, discrimination must be made in the selection of an anæsthetic; thus, Dr. Davis prefers chloroform in the performance of version, in the delivery of a placenta retained by spasmodic contractions of the uterus, and in any condition in which a well-marked contraction-ring threatens uterine rupture. On the other hand, in the usual employment of the forceps in dealing with postpartum hemorrhage, where interference is necessary and an anæsthetic required, and in abdominal section for the complications of parturition, he prefers the administration of ether. These conclusions are the result of experience and close observation, and are not arrived at from purely theoretical considerations of the action of these various agents.

ASPIDOSPERMINE IN DYSPNŒA.

Bardet (*Revue Internationale de Bibliographie Médicale*, April 10, 1893) has made some clinical studies of quebracho aspidosperma in the treatment of dyspnœa. The plant aspidosperma occurs in commerce in a number of forms, and it is uncertain as to which is the proper form to employ. It very distinctly increases the fulness of the movements of respiration, slows the heart, and depresses the temperature. The blood of animals poisoned by it becomes red.

Bouchard has found the drug very valuable in the treatment of ordinary functional dyspnœa. The dose is from ¼ to ½ grain, or even as much as 1 grain, or a solution may be given hypodermically, as follows: Aspidospermine, 3 grains; water, 3 drachms. To this solution may be added a small percentage of sulphuric acid to maintain its solubility, and the acid may be neutralized at the moment of injection with a little bicarbonate of sodium. 15 drops of this solution is the ordinary dose for hpodermic use.

THE HYPODERMIC INJECTION OF ICHTHYOL.

Damiens, in a Paris thesis, highly recommends the employment of ichthyol hypodermically, and states that it possesses under these circumstances analgesic properties, as there is, in addition to the absorption of the swelling, a suppression of the pain. Particularly is this of value in cases of neuralgic pains associated with inflammatory processes which have caused exudations. It is hardly necessary to add that hypodermic injections of

ichthyol are not equal in analgesic power to hypodermic injections of morphine, but they are very much more innocuous.—*Revue Internationale de Bibliographie Médicale*, February 10, 1893.

NOTES ON ARSENICAL NEURITIS FOLLOWING THE USE OF FOWLER'S SOLUTION.

In the *Montreal Medical Journal* for April, 1893, Dr. William Osler publishes the following interesting note:

He states that during the first few years of practice he was in the habit of using arsenic somewhat sparingly, but after the appearance of Bramwell's paper in 1877, on the use of this drug in pernicious anæmia, he began, in the cases which came under his observation, to use it more freely, and since that time in various forms of anæmia, in leukæmia, in Hodgkin's disease, and chorea minor he has used it in what might be called large doses. His rule has been to begin with 2 or 3 minims three times a day, and gradually increase the dose every four or five days until the patient took 10, 15, or 20 minims of Fowler's solution three times a day. He preferred to see the physiological effects,—either itching of the skin, slight œdema, an attack of vomiting, or diarrhœa. The quantity which will induce these symptoms varies in different individuals, and in the anæmia cases those who bear the drug best seem to improve the most rapidly. The largest doses he has ever given were in a case of pernicious anæmia, in which the patient had taken during his primary attack, with the greatest benefit for several weeks, 20 minims of Fowler's solution three times a day; and had reached in his relapse 30 minims three times a day, when, at the end of a week, he had an attack of itching of the eyelids and œdema over the eyebrows.

In the chorea minor of children, who, as is well known, stand arsenic well, it is a common experience to find that 12 and 15 minims of the liquor arsenicalis may be given daily without ill effects. Until two years ago, though Dr. Osler had often seen the symptoms of saturation above referred to, he had never seen any serious toxic symptoms referable to the nervous system, but he had at that time in the ward a patient with pernicious anæmia who had taken for a long time large doses of Fowler's solution, and under its use had feelings of numbness and tingling in the feet and legs, which was thought might be due to arsenic. This may not have been so, however, since these advanced cases not infrequently have sclerosis of the posterior columns of the cord, in connection with which loss of the knee-jerk and sensory changes in the legs may develop. Osler has repeatedly in his clinics and ward class talks referred to the apparent harmlessness, so far as his experience went, of Fowler's solution.

On October 25, 1892, the patient was admitted to the author's wards with Hodgkin's disease, the cervical, axillary, and inguinal groups of glands being involved. Having had under observation for nearly four years a case of this disease which has been remarkably benefited by the prolonged use of Fowler's solution taken at intervals, he was naturally placed upon the same drug. The details of his case, so far as they relate to the lymphatic disorder, do not concern us. The arsenic was begun on October 27, given as Fowler's solution, and gradually increased. He took it on the first occasion for ten days; it was then resumed on November 14, and in two weeks the dose reached 15 minims three times a day. Towards the end of November it was noted that his skin, which was naturally of a somewhat dark color, had a much deeper tint, and that of the abdomen was very distinctly bronzed. Throughout the month of December he did not do well. The arsenic was stopped on the 19th and begun again on the 27th. From the outset the patient had had that interesting feature in many cases of Hodgkin's disease,—an intermittent pyrexia,—and, as may be seen by his last temperature chart, rises occur every afternoon and evening to about 104° F. The pigmentation seemed to increase throughout December. Twice during the first two months of his stay in hospital there was slight diarrhœa, which was attributed to the arsenic. About the middle of January it was noticed that he was tender to the touch and walked somewhat stiffly. He is a Pole, speaking no English, and, as there was no one in the ward to interpret for him, these symptoms did not perhaps at first attract the attention they deserved. The most striking feature at this time was the sensitiveness on pressure. The skin itself did not appear to be painful, but if, for example, the arm was grasped, or the pectoral muscle lifted, or the thigh pinched, he winced and tears came into his eyes. By the end of January he walked with much difficulty, and could scarcely go from his bed to the closet. He has naturally, in the course of his disease, wasted a good deal, but the legs seem to have become distinctly more flabby within the past three weeks or so. The knee-jerks, which were present on January 10, are now absent.

On February 2, Dr. Hoch reported the faradic excitability of the nerves of the leg was diminished, the galvanic also to a slight extent. In the muscles the diminution to both currents was more marked, and the contraction following the galvanic stimulation was decidedly slower, and the anode, if not larger, was at least equal to the K. C. C. The muscular power in the arms is not so strikingly diminished, though the grasp is feeble in comparison with what it was. The hypersensitiveness of the muscles does not appear to be at all diminished.

Between the 27th of October and the 10th of January this patient took four ounces one drachm eighteen minims of the liquor potassæ arsenitis, equivalent to about sixteen and a half grains of arsenious acid. During these seventy-five days there were fourteen days in which the drug was omitted. The marked sensory changes, the gradual impairment of muscular power, and the progressive character of the symptoms indicate very clearly the peripheral and neuritic nature of the affection; and though he has a chronic cachexia, in which, as in cancer or tuberculosis, neuritis might develop, yet it seems more rational to attribute it to the somewhat prolonged use of the arsenic, more particularly as he has had also another striking feature of arsenical poisoning,—namely, pigmentation of the skin.

Arsenical neuritis from accidental poisoning is not very uncommon. Less commonly it results from accidental contamination in certain occupations. It is claimed by Folsom, Putnam, and others in Boston that cases may be of "domestic origin,"—that is, due to absorption of extremely small quantities of arsenic with the dust from wall-papers, carpets, or curtains. Cases such as the one reported in this paper, in which the toxic symptoms have developed in consequence of the administration of arsenic as a medicine, are in reality extremely rare. A few years ago Dr. J. J. Putnam collected a series of cases in which serious poisonous effects had followed the long-continued use of medicinal doses. A majority of them cannot be said to be very satisfactory, as the reports are imperfect as to the amount taken and as to the symptoms. Among the cases referred to are, however, some which would indicate very clearly that the prolonged use of even moderate doses may cause symptoms of a widespread neuritis. Individual idiosyncrasy plays, no doubt, an important *rôle;* tolerance may, as a rule, be established, as with the Styrian arsenic-eaters, but such cases as the one reported show that we must be on our guard in the protracted administration of the drug.

TOLYPYRIN.

PAUL GUTTMANN (*Berliner Klinische Wochenschrift*, No 11) describes the new remedy tolypyrin, which resembles antipyrin, but is cheaper.

The tolypyrin forms colorless crystals, which melt at from 107° to 108° F., and have a very bitter taste. They are soluble in about ten parts of water, are readily taken up by alcohol, and are almost insoluble in ether.

Like antipyrin, the fluid solution of tolypyrin becomes of an intense red color when chloride of iron is added to it; upon the addition of nitrous acid it becomes green. If the amount of tolypyrin which can be held upon a knife-point be heated with two cubic centimetres of twenty-five-per-cent. nitric acid the fluid becomes wine color. By the addition of ammonia this color will be changed to bright yellow.

After testing tolypyrin carefully on rabbits and then upon healthy persons, Dr. Guttmann was ready to test its supposed antipyretic action upon patients with high fever. This he did in six cases of typhoid fever, five cases of pneumonia, two cases each of facial erysipelas, scarlatina, and phthisis, and in one case each of septicæmia, otitis media, and gangrene of the scrotum with high fever.

The tests were always begun at noon, and the temperature was taken every hour until night, and then every two hours.

The result was the following: One drachm of tolypyrin, given in four hourly doses of 15 grains each, lowered the temperature at least 1½° C., usually about 2° C. and over. A few times it was lowered as much as 3° and 3.5° C., and once 3.7° C. was reached. This diminution of temperature began in the first hour and continued from five to six hours, when, the lowest point having been reached and the action being removed, a gradual rise in temperature occurred. This was usually so gradual that the original temperature was not regained until the following morning. So that by one drachm of tolypyrin the temperature may be kept at a lower point during from twelve to eighteen hours, if the use of the remedy is begun at noon. The fall in temperature is accompanied by the secretion of sweat on the body, especially on the face, but there is no trace of chilliness when the temperature rises again.

The frequency of the pulse corresponds with the course of the temperature.

The amount and duration of the lessened temperature is just as great as that of antipyrin. In treating five cases Guttmann used first tolypyrin and then antipyrin some days later. In each case the action of the tolypyrin was slightly

the stronger. There are no unpleasant symptoms connected with its use, although in rare cases vomiting may occur after one of the hourly powders.

He also tested tolypyrin as an antirheumatic and an antineuralgic; here, too, the results were excellent. For headache he found it equally valuable with antipyrin.

As tolypyrin is cheaper than antipyrin, while equally helpful as antipyretic, antirheumatic, and antineuralgic, it is to be preferred.

THE EFFECT OF HYPODERMIC INJECTIONS OF BORAX IN ACUTE PNEUMONIA.

In one of the Polish journals, DR. RUNEBERG gives a report of five cases of acute pneumonia treated by the hypodermic injection of borax in the medical clinic of Helsingfors, and claims a marked modification in the duration and progress of the disease.—*Revue Internationale de Bibliographie Médicale*, April 10, 1893.

THE TREATMENT OF SCIATICA.

In the London *Lancet* for April 15, 1893, DR. E. VALENTINE GIBSON gives the analysis of one thousand cases of sciatica, with special reference to one hundred cases, treated by acupuncture. The results on discharge from the hospital of one hundred consecutive cases of sciatica treated by acupuncture are as follows: Fifty-six per cent. were cured, thirty-two per cent. were much improved, ten per cent. were improved, and in two per cent. there was no improvement. These results are satisfactory, considering the chronic nature and the severity of the majority of the cases. All these were treated by acupuncture, and they all used the Buxton thermal water, which has such a great reputation for the absorption of inflammatory products. Acupuncture the author considers very valuable. Dr. Gowers states, "Simple acupuncture along the course of the nerve has been recommended; it gives temporary relief, as does any superficial pain, but the cases are very few in which it has a permanent effect." The writer believes that Dr. Gowers refers to cutaneous acupuncture and not to acupuncture of the nerve itself, which was the method employed in these cases. The patient can always tell when the nerve has been pierced by pain shooting down the leg. The needles ought not to be left *in situ* for any length of time, but withdrawn immediately, as unless this is done severe pain is often caused on their withdrawal, and no better results seem to follow this line of treatment. A single spear-pointed needle two and a half inches long is all that is required, as the depth of tissue to be pierced can be regulated according to the situation and the development of the patient. If the nerve is not pierced on the first introduction of the needle, it can be partially withdrawn and entered again at a somewhat different angle, and in this way the nerve may be pierced in several different places with but one cutaneous puncture. The nerve should be pierced about five times over the parts where there is pain on pressure. The external popliteal nerve to the inner side of the biceps tendon may also be pierced if it is painful, and as it is not covered by muscle, this can easily be done. There is often pain situated on the outer side of the leg, which in all cases is probably due to "referred pain." The musculocutaneous nerve may be punctured along the whole of its course, but being of small size and lying deeply, it is naturally more difficult to pierce; but, even if the nerve is missed, the needle, passing in close proximity, must exert counter-irritation. These cases, without exception, he considers were due to an inflammation of the nerve-sheath, this affecting primarily the adventitious tissue, and in more severe cases spreading into the interstitial tissues,—a perineuritis and an interstitial neuritis respectively. This condition would account for the various symptoms, sensory and trophic, such as pain, tingling sensations, and the wasting of muscles supplied by the affected nerve, and also those supplied by the small sciatic, when the disease affects the lower portion of the sacral plexus.

The author, in view of his lack of opportunities for post-mortem examination, quotes from Dr. Gowers: "In most cases that have been examined distinct evidence of neuritis has been found, chiefly involving the nerve-sheath, but extending in some cases into the interstitial tissue. In recent cases there are small hemorrhages, and in seven cases similar, but slighter, alterations in the interstitial tissue with secondary damage to the nerve-fibres. The signs of inflammation are most intense at the sciatic notch and opposite the middle of the thigh. They may be limited to one or both of these places, or they may be greatest there and extend in slighter degree over a considerable tract of nerve." Considering this to be the true pathology of sciatica, the treatment by acupuncture is a rational one, more especially in the earlier stages of the disease; but even in the later stages puncturing the thick-

ened nerve-sheath may promote absorption. If the nerve is pierced in a number of places over the inflamed area, where there is congestion of vessels and consequently exudation of serum and small-celled infiltration, it must be given an outlet, however small, to more or less of the exudation; also dilated blood-vessels must be pierced, thus relieving tension in two ways and favoring the process of absorption. Rest is necessarily most essential, as it is in other inflammatory conditions. A rheumatic or gouty diathesis should be treated by appropriate remedies, as they are often a predisposing cause. The more chronic the sciatica is the more difficult is the cure, as organization of the effused material must be a source of irritation and a nidus for subsequent relapses. In cases of secondary sciatica due to rheumatoid arthritis of the hip-joint, a slight temporary relief only is obtained by acupuncture, as the source of the irritation cannot be eliminated. Whether this irritation is due to pressure of the enlarged capsule of the joint on the nerve or to the changes in the joint, giving rise to a neuritis of the nerve-fibres supplying the joint, and spreading from there to the trunk of the sciatic nerve, is a point requiring investigation.

In conclusion, if every case of sciatica, beginning acutely or subacutely, were to be treated by absolute rest, together with acupuncture, repeated, if necessary, at intervals of a few days, and at the same time any rheumatic or gouty tendency were treated by suitable remedies, the author does not think there would be the number of chronic and relapsing cases that one so often sees.

ON THE ADMINISTRATION OF CARBOLIC ACID.

In the *British Medical Journal* for February 18, 1893, Dr. Wiglesworth, of Liverpool, makes the following remarks:

The Dose.—The amount suggested by Dr. Charteris he considers to be too small if given for zymotic disease, and finds the following to be average doses, according to age: One year old, 1 grain; from that up to ten, 1½ to 2 grains; for youths, 2½ to 3 grains; for adults, 3 to 5 grains. Owing to a dispenser's mistake, he found that 7 grains produced irritant vomiting and purging, which ceased immediately on the dose being reduced to 3½ grains (four doses had been given, one every four hours, instead of half the quantity every two hours).

Frequency of Administration.—The author's idea was to "carbolize" the patient, and with this view he gave a dose every two hours night and day, because carbolic acid is a very unstable compound, and enters into chemical combination with almost every substance with which it comes in contact, and is rapidly oxidized. From a series of observations, extending over hundreds of cases, he concluded that when the urine had been rendered black by its administration, and kept so, the object had been obtained, for when thus altered it may often be kept weeks without any appreciable decomposition taking place. At first he feared the changing of the urine's color denoted altered blood, but repeated examinations failed to detect a trace of blood even after the largest doses had been administered. Dr. Charteris terms this coloring-matter hydrochinon. Still, as the author obtained this colored urine when using pure phenol, he surmises it must be due to the increased quantity administered and not altogether to impurity.

Vomiting.—He has never known carbolic acid to produce vomiting, except in the case of the excessive dose referred to,—7 grains. Indeed, in the vomiting of pregnancy, he considers this remedy efficient above all others in checking this troublesome complication. Like every other drug, it is not infallible, but it is the first he administers, and generally in 2-grain doses. In bilious vomiting it is singularly efficacious. It is possible that there may be something in the method of preparing it for administration. He prescribes with the mixture a few drops of spirits of chloroform, and either tincture of cardamoms or orange-peel to flavor it. Syrup is plentifully used, and water to make up an eight-ounce mixture. Of this one tablespoonful is ordered, to which is to be added two or more of water. In this way an agreeable fluid drink is made, freely partaken of by both children and adults. Only one instance is recorded by the author in which a child refused to take it; but as all medicine was equally refused, this is of little account. He believes if a mixture so prepared is ordered in the future, and careful observations made, it will be found that vomiting will be allayed rather than excited by its administration; indeed, it is difficult to see from what cause vomiting should arise, for in these doses —1 to 5 grains freely diluted—it acts more as a sedative than an irritant. It is quite clear that in pills it might cause vomiting, or rather that the pills caused vomiting, for retching is often excited by swallowing even bread pills.

Effects on Temperature.—I do not think that carbolic acid *per se* has any effect in lowering temperature.

Its Use in Zymotic Diseases.—If given in doses of 4 to 5 grains every two hours in the initial stage of puerperal septicæmia, it generally stamps it out in from twenty-four to thirty-six hours, and in the later stages, combined with the administration of quinine in alternate doses, it is most effectual. In cases of apprehended puerperal septicæmia he commences its administration within twelve hours of completed labor, with great success.

As a Prophylactic in Scarlet Fever.—Whenever a case of scarlet fever originates, he at once puts all those in the house who have not had the fever on carbolic acid,—2-grain doses twice a day. In a large number of cases the outbreak has been confined to the one first affected, and if any others have subsequently taken it, the attack has been singularly mild. The following is a good illustration:

On November 4 a child, aged ten, took a severe attack of scarlet fever, when all the other children—one older, four younger—except the baby, eighteen months old, took 2 grains of carbolic acid twice daily. In four days another child was taken ill, but the attack was much milder. The mother mixed promiscuously among them. The baby was unavoidably in the sick-room much of the day and during the whole night. At the end of three weeks, while desquamation was active, the baby took the scarlet fever, but in such a modified form that it could be scarcely said to be ill; the rash was transient, and she was well in a week. There was no desquamation in her case. None of the other three children have taken it. They took the acid until the house was disinfected.

In conclusion, he states that after twelve years' experience he knows of no therapeutic agent to equal it in efficiency, and has never seen any untoward result arise from its careful use.

He suggests that the spores of the pathogenic microbe which produce scarlet fever have either a feeble investing membrane or are peculiarly sensitive to the influence of carbolic acid; hence they are rendered incapable of vigorous multiplication, each succeeding generation becoming more attenuated. Therefore, when transferred even to fresh pastures, they are too feeble for active development, and a mild attack is the result.

THE EFFECT ON SUCKLINGS OF PURGATIVES ADMINISTERED TO THE MOTHER.

In the *Practitioner* for March, 1893, Dr. William J. Gow contributes a paper with the above title, in which he states that Fehling drew attention to the fact that certain drugs administered to nursing women made their appearance in the milk. He showed that salicylate of sodium and iodide of potassium, if taken by the mother, could in part be recovered from the child's urine. Mercury taken by the mother did not usually appear in the milk, and opium and chloral, even if given to the mother in considerable quantities, did not seem to produce any effect upon the sucking child.

There is a wide-spread impression, especially among monthly nurses, that purgatives administered to the mother often lead to disturbance of the bowels of the sucking infant. There seems, however, to be no accurate knowledge as to the frequency with which this occurs. The question whether some drugs are more apt to bring about this disturbance than others, and if so, which? does not seem to have been definitely answered. With a view to obtaining some information on these points, observations were made on a number of cases of nursing women who were suffering from constipation. Various purgative drugs were given to them, and the effects produced both on the women themselves and on the infants were noted. Experiments were made with the four drugs,—senna, aloes, cascara sagrada, and sulphate of magnesium. In all cases the frequency of the action of the bowels before and after was noted in both mother and child. In all cases the drug under trial was given for not less than a week, but in some cases for a longer period. Those cases were excluded in which the child's bowels were acting very frequently, and also those in which the mother did not seem to possess a reasonable amount of intelligence. No attempt was made to determine whether any of the drugs given appeared in the milk. The experiments were purely clinical, and only took into consideration the effect, if any, on the child's bowels. The infants varied in age from three weeks to ten months, and were in all cases fed entirely from the mother's breast. Observations were made on forty-two cases.

1. *Senna.*—Eleven observations. In eight cases the compound licorice powder was administered and in three the confection of senna. The licorice powder was given in teaspoonful doses, for the most part once a day, but occasionally oftener. In one drachm of the powder there are ten grains of senna and five grains of sublimed sulphur. The confection of senna contains about 4.2 grains of senna in every drachm. The other substances present in the confection, such as figs, cassia, etc., may be

disregarded, as they appear to do little more than slightly to increase the peristaltic action of the intestines.

In ten cases the children's bowels were unaffected. In one case, in which the child was previously costive, the bowels only acting every other day, it was found that after giving confection of senna to the mother twice a day for a week, the child's bowels acted every day.

In no case was the child purged by the use of the drug, which, in the majority of cases, was given in sufficient quantity to bring about a daily action of the mother's bowels.

2. *Aloes.*—Ten observations. In all cases the pill of Barbadoes aloes, combined with a quarter of a grain of extract of nux vomica, was administered. In five cases this pill was given twice a day, and in five cases only once a day. The amount of Barbadoes aloes contained in each pill is 2.18 grains.

In eight cases the children's bowels were unaffected. In one case the child's bowels, which had previously acted every day, became somewhat more costive, and in one case the child's bowels acted more freely (twice a day instead of once a day). In this latter case it will be observed that the pill was taken twice a day.

3. *Cascara Sagrada.*—Ten observations. In seven cases the liquid extract was administered, and in three the solid extract. The liquid extract was given in ½-drachm doses, combined with carminatives, three times a day. The solid extract was given in 2- to 5-grain doses twice a day.

In eight cases the children's bowels were unaffected. In one case the child became more costive, and in one case less costive than before.

4. *Sulphate of Magnesium.*—Eleven observations. In all cases 1-drachm doses of sulphate of magnesium were administered three times a day.

In five cases the children's bowels were unaffected. In five cases the bowels were more freely open than before. In one case the child's bowels became more costive.

These observations, though comparatively few in number, seem to show that sulphate of magnesium administered to the mother leads to purgation of the child in nearly half the cases. The other drugs—senna, aloes, and cascara sagrada—seem only occasionally to produce this result, and therefore may be considered as the most suitable remedies to be used in cases of constipation in nursing women. Whether the slightly-increased activity of the child's bowels, noticed once in each of the series of cases where the last three mentioned drugs were employed, was really due to the drug or not, it is of course not possible to decide. There seems to be no relation between the effect of the drug on the mother and that on the child. In one case the mother was freely purged, yet the child's bowels still remained costive as before. On the other hand, when the drug given failed to relieve the mother's constipation, the child's bowels sometimes were and sometimes were not affected.

The only conclusions that can be drawn from these observations are:

1. Sulphate of magnesium administered to the mother frequently causes looseness in the sucking child; and

2. Senna, cascara sagrada, and aloes rarely affect the child's bowels when administered to the mother.

ON THE TREATMENT OF DIABETES MELLITUS BY FEEDING ON RAW PANCREAS AND BY THE SUBCUTANEOUS INJECTION OF LIQUOR PANCREATICUS.

Dr. Hale White, in the *British Medical Journal* for March 4, 1893, gives the following interesting account of his experience in the treatment of diabetes mellitus by feeding the patient on raw pancreas and the subcutaneous injection of pancreatic liquor.

Last November, Dr. White determined on the first opportunity to try the effect of treating diabetes by feeding on pancreas and injecting pancreatic extract, and the two cases subjoined were under treatment at the time when Dr. Hector Mackenzie and Dr. Neville Wood gave an account of their cases in the *British Medical Journal* of January 14, 1893. They are the first that have been published in which constant determinations of the urine have been made. Messrs. F. G. Hopkins, B.Sc., and W. J. Harris, Dr. White's clinical assistants, made the analyses, and the results may be absolutely relied upon. Each patient was for the whole period of observation kept upon a diet consisting each day of twenty soya bean biscuits, two eggs, two ounces of butter, two almond biscuits, one fluidounce of milk, twelve ounces of cooked meat, greens, water-cress, tea, and soda-water. The state of the patient and of the urine on this diet having been ascertained, each was given, in addition, for his supper, about two ounces of raw fresh sheep's pancreas, chopped fine and flavored with pepper and salt. When this was discontinued, five

minims of liquor pancreaticus were injected subcutaneously night and morning, the restricted diet being as before.

We therefore learn that, as regards sugar, in one case it was distinctly less when raw pancreas was taken than it was before, and that the same effect, but to a less degree, was associated with the injection of liquor pancreaticus subcutaneously. In the second case neither of these modes of treatment had any effect in reducing the sugar.

QUANTITY OF URINE.

CASE I.—Daily average before the administration of pancreas, 158 fluidounces. Daily average for thirteen days on which pancreas was given, 158 fluidounces. Daily average for six days during which liquor pancreaticus was injected, 137 fluidounces.

CASE II.—Daily average before the administration of pancreas, 94 fluidounces. Daily average for seventeen days during which pancreas was given, 115 fluidounces. Daily average for eight days on which liquor pancreaticus was injected, 108 fluidounces. We may probably conclude that neither the feeding on pancreas nor the injection of liquor pancreaticus had any decided effect upon the quantity of urine.

THE SPECIFIC GRAVITY.

CASE I.—Before the administration of the pancreas the daily average was 826 grains. When this was given it was 1079 grains, and when the liquor pancreaticus was injected it was 971 grains. It is, therefore, very doubtful whether either the pancreas or the liquor pancreaticus have any effect on the urea; certainly they had not in Case I.; possibly they increased it in Case II.

EFFECTS ON THE GENERAL CONDITION OF THE PATIENT.

CASE I.—Previous to taking the pancreas he had gained twelve pounds in forty-two days. During the treatment he gained seven pounds in the first twelve days, his weight mounting from one hundred and thirty-four to one hundred and forty-one pounds. Four weeks after this it was one hundred and forty pounds. In these four weeks he had had pancreas for six days and liquor pancreaticus for six days, but these weeks also included the period of pyrexia. He enjoyed his pancreas, ate it with relish, but did not appear to feel much better for it.

CASE II.—This patient, on treatment with restricted diet from November 28 to January 5, sank in weight from one hundred and five to one hundred and four pounds. After feeding with pancreas for seventeen days his weight was one hundred and six pounds; but as it was this two days after the pancreatic treatment was begun, it is doubtful whether it had anything to do with the slight gain. He liked the raw pancreas, and said he felt better on it than anything else. We may conclude that the patients do not lose weight when treated with the pancreas; perhaps they gain a little, and if there is any other alteration, they feel a little better for the treatment.

DISADVANTAGES.

It will be noticed that the first case suffered from a severe erythema accompanied by fever. These symptoms could only be set down to the pancreas he was taking, which was, however, perfectly fresh. Probably the illness is of the same nature as that due to shell-fish, or that sometimes brought about in myxœdematous patients treated with thyroid gland. The presence of a sore throat is not against this view, for it may occur in copaiba-poisoning. During the febrile attack the sugar fell very low. The second patient had no rash, but perhaps the rise of temperature and slight sore throat he had on one day were of the same nature as the illness of the first patient.

The general conclusions at which we may arrive, if we may judge from two cases only, are that it is very doubtful whether feeding on fresh pancreas or the subcutaneous injection of liquor pancreaticus is of any benefit in diabetes mellitus. Neither appear to have any influence on the quantity of the urine, its specific gravity, or the urea; perhaps they decrease the amount of sugar passed, and very slightly increase the weight and feeling of strength. Patients like the raw pancreas, but one great disadvantage is that it may cause severe erythema, with fever and a slight sore throat.

THE INFLUENCE OF SUSPENSION ON VISUAL DIFFICULTIES IN NERVOUS PATIENTS.

BECHTEREFF and VOROLYNSKI contribute an article upon this subject to the Society of Neuro-Pathology and Psychiatry of the University of Kasan (abstract in *Annales d'Oculistique*, March, 1893). These authors, using suspension in the treatment of certain affections of the nervous system, noted, among other things, the good effects of the method upon visual acuity. In the literature they have found only several short notices by various observers (Darier, Eulenburg and Mendel, Abadie and Desnos, Bernhardt), who have referred

to this fact and mentioned it in the description of their cases. Bechtereff and Vorolynski have undertaken a series of experiments on nervous patients who at the same time suffered from visual defects. These patients were subjected to the treatment of suspension exclusively, and before and after each visit their visual acuteness was carefully examined, as well as the extent of the field of vision for each color. Three cases are reported. In one—tabes dorsalis—vision was considerably improved after suspension. In the second—tabes with atrophy of the optic nerves—the visual acuity of the eye chiefly attacked rose from $\frac{3}{200}$ to $\frac{5}{200}$, and remained at this point during two weeks of observation. Finally, in the third case, quoted as an organic affection of one eye, the vision of $\frac{15}{70}$ became $\frac{17}{70}$. At the same time it was remarked that after each suspension there was an increase in the field of vision, especially for white, from five to twenty degrees in different directions. The article closes with speculations in regard to the mechanism by which improvement occurred in these cases.

ON THE RELATION OF THE EYE TO EPILEPSY.

GEORGES MARTIN (*Journal de Médecine de Bordeaux*, No. 14, April, 1893), after an investigation of this subject, comes to the following conclusions:

1. Neither astigmatism nor hypermetropia is often found to be an active factor in causing epilepsy.

2. In the author's (Martin's) hands epilepsy has not been in any way affected by the use of correcting-glasses, either for astigmatism or for hypermetropia.

3. The cases related by Stevens indicate the possibility of remedying this disease, under certain circumstances, by optical means.

4. It is, therefore, wise, when treating an epileptic, when nothing else explains the disease, to think of the ocular conditions.

Martin suggests that the different results obtained by himself and by Stevens may be owing to the fact that he believes in America the refraction of a patient is usually determined and corrected after subjecting him to a mydriatic (and by giving him glasses which neutralize the totality of the hypermetropia), while in Europe it is customary to correct only the manifest hypermetropia plus one-quarter of the latent hypermetropia. The result is that the ciliary muscle of patients thus corrected has imposed upon it much more work than under the first-named circumstances. He speculates whether Stevens owes his cures to a more complete rest of the accommodative function, and thinks it is possible that such may be the case, quoting in substantiation of his idea a recent publication of the apparent cure of an epileptic boy by the full correction of a marked hypermetropia, only a very slight portion of which was manifest.

THE THERAPEUTICS OF MYOPIA.

VALUDE (*L'Union Médicale*, No. 31, March, 1893), in the last of a series of articles on a clinical study of myopia, writes thus concerning its treatment: When myopia is confirmed, and it is necessary to have recourse to corrective glasses, the choice of the suitable lens is not always an easy one, even when the extent of the real myopia is known. It would be a serious fault invariably to order for all myopes the glass which corresponds exactly to their degree of ametropia.

For simple and slight myopia—that is, from 1 to 2 D.—the ametropia must not be corrected, nor must concave glasses be given. For myopia of 2 to 5 D. the patient needs glasses to see at a distance. In this case he must be given the glass which corrects all his myopia, but only to see at a distance. For short ranges glasses must not be ordered. His punctum remotum is situated at a sufficient distance to adapt the eye to work, and it is useless to oblige him to make efforts of accommodation. When the myopia ranges between 5 and 9 D., as in the preceding case, the glass which corrects all the myopia must be given for long ranges; but for reading, a glass of 2 D. less than that given for distance. For the piano, the fully correcting lens should be diminished by 1 D. In very high degrees of myopia—9 D. and above—no effort should be made to correct the entire myopia, and both for distance and for close work the glass must not be stronger than 9 D. Myopias which exceed 7 to 8 D. must be watched, because they may become acute. The fundus oculi should be examined frequently, and if there is any tendency to spasm of accommodation, atropine should be used.

In slight degrees of myopia—from 1 to 2 D., for instance, and even when the myope has not made use of corrective glasses—muscular asthenopia may arise. If there is a tendency to divergence, under these circumstances, a prism of 1 to 2 degrees, with its base inward, is recommended. If the myope who has mus-

cular asthenopia is obliged to wear corrective glasses, the efforts at convergence may be diminished by simply modifying the position of the glasses, without adding anything to them, —that is, by decentring them: Thus, the concave glass neutralizes the ametropia and acts as a prism. In cases of insufficiency of the internal rectus prisms will not answer, and tenotomy of the external rectus must be resorted to.

In cases of extreme myopia complicated with choroidal lesions, it often occurs that no glass will succeed in improving vision. Under these circumstances the patients should be advised not to fatigue their eyes, not to read or write, and smoked glasses should be recommended. In very bad cases of high myopia, where the patients are practically condemned to inaction, the extraction of the transparent crystalline lens has been performed. By this operation accommodation is suppressed and the degree of myopia reduced. The crystalline lens has a power of refraction equal to 11 D., but in its anatomical position is equivalent to a glass of 18 D. placed a centimetre and a half before the eye. First Fukala, then Pflüger and Vacher have reported successes with this operation. Valude has had a case in a child of ten years of age possessing a myopia of 15 D. Removal of the crystalline lens resulted in a hypermetropia of 3 D., and the child read well with both eyes at a distance of thirty centimetres. Two months after the operation, however, one of the eyes became atrophied, a fact not surprising considering the bad condition of the choroid and of the vitreous. Nevertheless, he thinks it is an operation that might be of great service in marked myopia. So far as the process of operation is concerned, he takes issue with those authors who advise extraction of the transparent crystalline at the onset. He prefers performing discission of the crystalline lens and removing the softened masses a few days later. He thinks there is less traumatism and less likelihood of accidents, which are always to be feared in eyes as pathological as are those attacked with extreme myopia.

TREATMENT OF DETACHMENT OF THE RETINA.

M. Bourgeois (Paris, 1883; review in *Annales d' Oculistique*, March, 1893) recommends actual cauterization of the sclerotic in detachment of the retina. He says that the cauterizations must be made successively and rapidly on the whole surface of the sclerotic corresponding to the place of detachment, on condition that no part which is on a level ciliary zone is to be touched. On an average from twelve to fifteen spots of cauterization are produced. If there is a loose detachment of the retina, the thermo-cautery may be thrust through in the central portion, so as to allow the subretinal liquid to escape. A complication which may arise is the production of uveitis, and hence it may be necessary to use instillations of atropine in order to avoid synechiæ.

THE TREATMENT OF HYDATID CYSTS OF THE ORBIT.

Terson (*Annales d' Oculistique*, March, 1893) advises in cases of hydatid cysts of the orbit as follows:

1. Make a puncture large enough to empty the cyst, and observe the results of the first operation.

2. In case of failure, make a larger incision, followed by prolonged injection of distilled aseptic water, and try to extract the hydatid vesicle by simple traction with the aid of pincers.

3. Do not induce suppuration of the sac until thorough attempts have been made at extraction in the manner described.

CATARACT OPERATIONS.

Dr. W. T. Montgomery (*Journal of the American Medical Association*, April 22, 1893) prefers simple extraction in all cases of uncomplicated cataract. If the cataract is not readily delivered through the pupil without bruising of the iris, he does not hesitate to make the iridectomy, converting the simple extraction into extraction with iridectomy.

The eye is cocainized with a fresh four-percent. solution of cocaine. The instruments, except the cataract-knife, are immersed for a few minutes in boiling hot water. The knife-blade is immersed in alcohol and wiped with a soft bit of linen, its point and edge having been tested. The closed eye is sponged externally with a saturated solution of boracic acid. He does not put the solution into the eye, because the conjunctiva is healthy, and he considers the healthy secretions of the eye the best antiseptic for it.

The incision includes about one-third of the cornea, and is made as nearly as possible entirely through the sclero-corneal junction. The capsule is opened with the cystotome, and the cataract is readily extracted through the pupil. The blood is removed from the eye, and the

edges of the wound are accurately coaptated. One drop of a solution of eserine sulph. (1 grain to 1 ounce) is instilled into the eye. The lids are closed, and a bit of soft linen moistened in the boracic acid solution is applied; then just sufficient absorbent cotton to even up the orbital depression; and, lastly, the gauze bandage. This consists of ordinary mosquito-netting, cut one and three-fourths inches broad and four yards long. It is applied moist, and the starch in it is sufficient to set it and hold it in place. This dressing is light and comfortable. The patient is put in a moderately-darkened room, and allowed to sit up or lie down, as he feels inclined. He is permitted to use his good eye just sufficiently to help himself. If the eye which has been operated on remains comfortable, the dressing is not to be removed until the third day. Then the dressing is changed; a drop of the one-per-cent. solution of atrop. sulph. is instilled between the lids. This is repeated the fifth day and the seventh, when, if the wound is closed, a shade is substituted for the bandage, and the patient permitted to leave his room.

For ripening cataract, the operation which he prefers is Förster's operation. The precautions which it is most important to observe in this operation are: First, confine the trituration to the area of the pupil and coloboma, so as not to pinch or bruise the iris; second, do not make too much pressure, or the lens may be dislocated; third, keep the cornea moist while the trituration is being done. He has performed this operation more than fifty times, and has not had any severe reaction in any case. As a rule, eyes have recovered from it as quickly as from a simple iridectomy. In a few cases there was not any appreciable effect upon the cataract, but in a large per cent. of the cases there was marked increase of the opacity the next day, and in a number he was able to make extraction successfully at the end of two weeks. This eye is dressed in the same manner as after extraction, and the patient is kept quiet for two or three days. If there is no reaction, the shade is substituted for the bandage, and the atropine solution is dropped in the eye once daily until all redness has disappeared.

THE INDICATIONS FOR THE ENUCLEATION OF AN EYE.

Dr. Edward Jackson (*Philadelphia Polyclinic*, April 15, 1893) summarizes the indications for enucleation as follows:

1. The presence in the eye of a malignant new growth, as glioma, sarcoma, or tuberculosis. This indication is imperative no matter how much vision the eye retains.

2. The presence in the eye of a foreign body, with irido-cyclitis. If the injury be recent and the inflammatory process still active, and the patient cannot remain under observation, an eye with anything less than thoroughly useful vision should be sacrificed.

3. The presence of a foreign body in a blind eye.

4. Blindness, with diminished tension of the eyeball, following perforation either by traumatism or corneal ulcer, most urgent after traumatic perforation of the exposed portion of the sclera.

5. Blindness the result of irido-choroiditis without perforation of the eyeball, if the patient cannot remain under observation.

6. Sympathetic inflammation, provided the exciting eye does not possess vision sufficiently good to be weighed against the chances of the sympathizing eye.

7. The actual presence of sympathetic irritation; not the risk of it, unless the patient is likely to be out of reach of surgical aid.

8. Persistent pain in a blind eye, sufficient to annoy its possessor or tempt him to the use of analgesic drugs.

9. Serious disfigurement of a blind eye, even if free from pain or risk of causing sympathetic disease.

THE TREATMENT OF HEMORRHAGIC GLAUCOMA.

C. de Bourgon (*Annales d'Oculistique*, March, 1893), after a thorough review of the literature of hemorrhagic glaucoma and the various operations which have been practised for its relief, comes to the following conclusions:

1. True hemorrhagic glaucoma presents a gloomy prognosis, as is evidenced by the large number of enucleations which have been performed for its relief.

2. The different operations proposed for the treatment of other forms of glaucoma are, with the exception of sclerotomy, useless and painful.

3. Since the general prognosis is almost as serious as the local prognosis, whenever the ophthalmologist deals with a case of hemorrhagic glaucoma, the general condition of the organism of the patient, and particularly the vascular lesions, should receive due consideration and treatment.

4. The treatment of hemorrhagic glaucoma should be conducted in the following manner:

During the hemorrhagic period the general condition must be cared for and the ocular globe rendered as free from congestion as possible. During the period of confirmed glaucoma it is recommended to use myotics, moist heat, and injections of ergotine in the temple. If this medication does not produce a sedative effect, surgical treatment is indicated, and of the various operations which have been advised, sclerotomy, simple or equatorial, is the best. Iridectomy must be rigorously avoided. If sclerotomy, together with medicinal means repeated at need, do not produce a lessening of the intraocular tension with a calming of the painful symptoms, one must have recourse to enucleation without attempting other operations.

CENTRAL CHOROIDITIS TREATED BY SUBCONJUNCTIVAL INJECTIONS OF SUBLIMATE.

M. Darier (*Annales d' Oculistique*, March, 1893) presented a patient to the Society of Ophthalmology of Paris, in the session of February 7, who had suffered with monolateral choroiditis, the lesions of which were largely confined to the macula. In January, 1892, the patient noticed that she saw lines as if they were broken and that objects were deformed. A course of mercurial frictions and iodide of potassium was useless. She consulted Darier November 11, 1892. Her vision at long range was relatively little altered. V. = ¼ at five metres, but at short range reading was impossible with average characters. She could only read No. 7 De Wecker. On November 28, after ten subconjunctival injections, V. = ⅔ at five metres, and she could read at close range the finest characters (No. 2 De Wecker), but the lines were still broken. After a month's rest the treatment was resumed, and to-day the sight of the diseased eye is equal to that of the sound eye,—V. = 1; reads at close range No. 1 De Wecker. In spite of this there is still a slight metamorphopsia, on account of the scar in the macula, which encroaches upon the fovea centralis.

DENDRITIC ULCERATION OF THE CORNEA.

Dr. H. M. Morton (*Annals of Ophthalmology and Otology*, April, 1893) reports two cases of dendritic ulceration of the cornea, each characterized by the presence of a small central ulcer, with several branches springing from a central point, resembling in form a Maltese cross, and with well-marked serrations on the extending branches. He dusted aristol upon the ulcer, and considers this a remedy of much value in corneal lesions of this character. In his cases, however, both atropine and eserine were also used. He refers to the use of creolin in dendriform ulceration of the cornea, but does not state personal experience with this drug.

Dr. John Dunn, of Richmond (*Annals of Ophthalmology and Otology*, April, 1893), reports a case of dendritic keratitis associated with a high grade of inflammatory reaction and accompanied by violent pain. There was also herpes zoster of the lid. Excellent results were achieved by the use of the galvanic current, one pole being on the nape of the neck and one on the closed lid of the affected eye. The patient also took iodide of iron and phosphide of zinc, and the ulcer was touched with a pyoktanin solution, while cocaine and atropine were instilled in the conjunctival cul-de-sac, and boiling water applied externally.

ASEPTIC COLLYRIA.

M. Vignes (*Annales d' Oculistique*, March, 1893), desiring to have collyria entirely beyond the chance of microbic infection, and the therapeutic efficacy of which should not be weakened by the development of fungi, has had the solutions sterilized, and a small quantity of each placed in a little tube drawn out and sealed by means of a flame. All that is necessary is to snap off the end of the little tube and drop the contents upon the surface of the eye. Tubes which have been filled with solutions of atropine and hydrochlorate of cocaine for weeks at a time show no alteration. Salicylate of eserine is more difficult to preserve. It may remain clear, but changes its color. To avoid this, the solutions of eserine have been placed in red and yellow glass tubes.

ON THE USE OF THIERSCH'S SKIN-GRAFTS AS A SUBSTITUTE FOR CONJUNCTIVA.

Dr. F. C. Hotz (*Annals of Ophthalmology and Otology*, April, 1893) contributes an additional experience upon the use of Thiersch's skin-grafts for the purpose indicated in the title. These grafts should be taken from any convenient surface of the skin, usually from the arm or the thigh, in the following manner: The skin is rendered thoroughly aseptic, and then being drawn tense and well wet with a

solution of sodium chloride (one-half-per-cent.), the blade of a sharp razor is laid upon and firmly pressed against the skin in such manner that slight sawing motions will make the edge of the razor just cut down to the papillary layer, and shave off a thin scale, consisting of epidermis and the tips of the papillæ.

In Dr. Hotz's experience they have proven an excellent material for repairing defects of the conjunctiva in the following conditions: 1, extensive adhesion of the lower lid to the eyeball (symblepharon following the destruction of the palpebral or ocular conjunctiva by lime or hot metal); 2, excessive shrinking of the conjunctiva in trachomatous eyes; 3, enlarging a contracting conjunctival pocket to make the insertion of an artificial eye possible; 4, in certain cases of pterygium.

TOXIC AMBLYOPIA FROM IODOFORM.

PRIESTLEY SMITH (*Ophthalmic Review*, April, 1893) quotes the following case which occurred in the medical wards of the Queen's Hospital under the care of his colleague, Dr. Foxwell, to whom he is indebted for the use of a very full clinical record made at the time:

Harry B., aged thirty-one, was admitted November 18, 1891. He had been treated three months earlier for pleuritic effusion. He was now suffering from diarrhœa, vomiting, emaciation, and rapid loss of strength. He was found to have, among other changes, dry pleurisy at both bases, and a solid substance in the abdomen, which was regarded as being probably due to tuberculosis of the omentum. The diagnosis was chronic tubercular pleurisy and peritonitis.

From December 5 to January 15, a period of forty-one days, he was treated with iodoform in pills, and during this time took no other drug excepting 5-grain doses of bicarbonate of sodium in infusion of calumba. He took at first 2 grains of iodoform three times a day, and the quantity was steadily increased until during the last ten days he took 4 grains eight times a day,—*i.e., 32 grains per diem.* He took altogether about one thousand grains in forty-one days. The iodoform was then stopped on account of toxic symptoms, especially amblyopia.

The onset of the amblyopia was associated with headache, giddiness, and faintness, the latter being due probably to a weak heart; also with diarrhœa, a constant taste and smell of iodoform, twitching of the hands, and emotional depression; also with a marked change in the urine,—viz., from high acidity with uric acid and urates, to alkalinity with triple phosphates. On the third day after the iodoform was stopped there was great drowsiness and slight left ptosis; the next day the drowsiness had given place to irritability, and the ptosis was gone. There were numbness and tingling in the legs, and the knee-jerks were increased.

Four days after the iodoform had been discontinued Mr. Smith examined the patient with regard to his eyes. The refraction was normal; the media were clear in both eyes. In both there was slight haziness of the disk margin, but no pronounced papillitis. Vision was greatly impaired, a well-marked central scotoma, absolute for white paper at or near the fixation-point, being present in each eye. Tested with red, the scotomata appeared to be larger than those commonly found in tobacco amblyopia. The loss of vision appeared to have begun a day or two before the iodoform was stopped, and while the patient was taking the maximum quantity of 32 grains a day, and to have rapidly increased from day to day. Up to this time he had seen well, for he had observed the pictures on the far side of the ward, and had read the newspaper as he lay in bed. Re-examined seven days after the iodoform was stopped, the haziness of the disk margins was rather more pronounced. The patient thought his vision had already begun to improve.

Four weeks later he came again under Mr. Smith's notice, and had still a small color scotoma in both eyes, with a very small absolute scotoma just below the fixation-point. Vision: R. $\frac{6}{18}$, L. $\frac{6}{24}$. He then received subcutaneous injections of strychnine for a week, and later iron and strychnine by the mouth. Vision improved steadily, and on April 8—*i.e.*, about three months after the onset of the amblyopia—it had risen to $\frac{6}{6}$ in each eye, and no scotomata could be found. The patient's general condition was much better than at the time of his admission into the hospital.

The following facts as to the patient's use of tobacco appear to exclude that agent as a possible cause of the amblyopia. Before admission he had habitually smoked about two ounces a week; during his stay he did not smoke at all, excepting about a quarter of an ounce on Christmas-day. It was, therefore, about seven weeks after the discontinuance of regular smoking, and three weeks after the one indulgence at Christmas, that the rapid onset of the amblyopia occurred. Moreover, during the period of recovery from the amblyopia, when he was no longer an in-patient, he resumed his

smoking, though probably in smaller amount than before.

With regard to the internal administration of iodoform in general, Dr. Foxwell has written Mr. Smith the following note: "I have given iodoform to a large number of phthisical patients during the past five years, and have always endeavored to reach a dose of 30 grains per diem, and to continue this for about six weeks. The patients have either complained of gastric disturbance when taking a small dose,—and I have then generally found it useless to continue the treatment,—or have submitted to the exhibition of the full dose with no bad symptom, except occasionally a vague depression. Only once did I notice any cerebral affection,—aphasia in a gentleman with bronchiectasis. Never, to my remembrance, has any one of my patients complained of visual defect. I have now under care a young gentleman of eighteen, phthisical, who has taken 27 grains daily for fourteen months, and has gained a stone in weight while doing so."

STATISTICS ON THE FATALITIES OCCURRING UNDER THE ADMINISTRATION OF ANÆSTHETICS.

In the *Wiener Medizinische Wochenschrift*, No. 18, 1893, the record of the Committee for the Collective Investigation of the Statistics of Anæsthetics, reported to the German Surgical Congress, through Gurlt, again proves that ether is by all means the safest anæsthetic. The use of bromide of ethyl resulted in one fatal case in Billroth's clinic. This is as dangerous as chloroform, and is no more serviceable than is nitrous oxide.

König, in discussing these statistics, states that no patient should perish from respiratory failure due to chloroform, but that sudden heart-failure cannot always be prevented. Three patients, who were in grave danger from this, were saved by König by means of his method,—that is, of strong rhythmical blows over the heart region. Occasionally, after a long time, the pulse will be found isochronous with these rhythmical blows.

Von Bardeleben stated that he had used chloroform every year since 1848 in at least one thousand cases annually, and up to the year 1878 he had had no fatal result.

Although Gurlt has collected one hundred and thirty thousand cases of chloroform narcosis, this number is yet too small to justify definite conclusions.

Küster employed chloroform for twenty-one years, but now uses ether, and is very well satisfied with it. Only in cases of head and neck operations is it troublesome, since here the mask employed can infect the wound, or may be in the operator's way.

SURGERY OF THE SPINE.

DELORME (*Annales d' Orthopédie*, tome vi., 7 année, No. 4) reported two cases of spinal surgery. The first suffered from caries with chronic kyphosis. There had been progressive paralysis for eleven months, and the patient had no control over either the bladder or rectum. Laminectomy was performed, and there was found local pachymeningitis; a bone abscess situated between the cord, and the deep surface of the vertebral bodies was opened and curetted. In twenty-four hours sensibility returned to the lower extremities, and the functions of the bladder and rectum were restored.

The second case was suffering from acute paraplegia, with intermittent contractures of the right upper extremity. Laminectomy of the eleventh, tenth, ninth, and eighth dorsal vertebræ was performed. Extensive pachymeningitis was found. Fungous growths were removed. The dura mater was well scraped. At the autopsy there was found meningeal myelitis and cerebral and cardiac lesions.

HYDATID CYST OF THE LIVER.

BILHAUT (*Annales d' Orthopédie*, tome vi., 7 année, No. 4) reports a case of successful operation for the cure of hydatid cyst of the liver occurring in a child six and a half years old. After a general consideration of the clinical course and the appropriate treatment in such cases, he gives the following therapeutic summary: In accordance with their positions, the cysts of the liver can be classified as antero-inferior, postero-inferior, antero-superior, and postero-superior. The antero-inferior cysts develop in the direction of the abdominal cavity, and behave very much as the hydatid parovarian cysts. It is evident that under such circumstances puncture, whether or not it is followed by injection, is dangerous, since there is always a risk of rupture of the general peritoneal cavity. Here laparotomy and excision is strongly indicated. Postero-inferior cysts should be treated by puncture, but in case of recurrence they should be incised. The seat of operation should be in the lumbar region behind. The antero-superior cysts

are those which puncture can cure. Puncture should be followed by antiseptic injection. If, however, there are many daughter cysts, this means of treatment will not avail. In the postero-superior cysts puncture ought first to be tried; in case of failure it should be followed by incision. Whenever puncture shows the presence of pus the cavity should be treated as simple abscess.

When antiseptic injections are employed they should never be used in such strength or quantity that when the whole injection is used there is a toxic dose of the substance employed.

Felizet reported an unsuccessful case in a child of five years. Puncture followed by injection of Van Swieten's solution was not followed by prompt evacuation. Cœliotomy was performed and the cyst ruptured during intra-abdominal manipulations; the child perished the same day.

Bouilly calls attention to the fact that the injection of a large quantity of sublimate is not only dangerous, but also unnecessary, since the hydatids are shortly killed by a quantity of sublimate far below that necessary to produce toxic results.

Verneuil reported a case of death due to injection of phenic acid. Before this treatment the cyst had already been punctured a number of times. The evacuated contents suggested the existence of blood-tumor of the spleen. After puncture, an antiseptic washing—a large quantity of liquid, containing in all about 1½ drachms of the phenic acid—was injected. None of this flowed out again, and the patient died in two days. The injection of sublimate in these cases has not always been successful in Verneuil's hands, doubtless owing to the existence of several daughter cysts.

Terrier, though strongly favoring surgical intervention, stated that he had had numbers of successes after puncture and injection.

PUERPERAL SEPSIS: ITS PREVENTION AND CURE.

Potter (*Annals of Gynæcology and Pediatry*, vol. vi., No. 7), after an interesting discussion of this important topic, arrives at the following conclusions:

1. Obstetric engagements once accepted should be faithfully fulfilled, no matter how awkwardly they fit. Apply the same rule of cleanliness to rich and poor alike. Decline service when this cannot be done. Human life is too precious to jeopardize it by slipshod, half-hearted, or indifferent service.

2. The physician should be a model of cleanliness in body and clothing, and should insist upon the observance of similar conditions by all persons in and about the lying-in chamber.

3. The delivery-room, whether in hovel or palace, court, alley, or avenue, should be simple in its furniture and hangings, and be cleaned with soap, water, and whitewash (if possible to use the latter) immediately before occupancy by the puerpera.

4. The delivery-bed should consist of a new tick filled with sweet and clean straw, covered with a blanket, impervious dressing, and a folded sheet, with other clean covering to be allowed, according to season. Exceptions to this simple bed should be as few as possible, and in no event should a bed be substituted that has been used by the sick, or that is not beyond even a suspicion of infection.

5. The patient should be specially prepared for delivery by baths and enemata, vaginal douches and clean clothing, and labor should be conducted on the lines of absolute cleanliness, with few digital examinations, and a complete delivery of the secundines.

6. Lesions of the genital tract should receive careful attention; rents of the peritoneum should be repaired, and so, too, in some instances, should tears of the cervix.

7. Antiseptic solutions containing a germicide should be used for cleaning the hands and instruments of the operator. Intrauterine irrigation with sterilized water should be carefully employed after operative midwifery, either manual or instrumental.

8. Finally, if sepsis proceed to suppuration and abscess, the abdomen should be opened, pus-cavities emptied, irrigation used, and drainage established. If the uterus and adnexa become thoroughly infected they should be extirpated.

A MODIFICATION OF THIERSCH'S METHOD OF SKIN-TRANSPLANTATION.

Trinka (*Wiener Medizinische Wochenschrift*, No. 18, 1893) having noticed, in extensive skin-transplantations according to the method of Thiersch, that the flaps first placed in position were most prone to preserve their vitality, adopted the practice, after having thoroughly covered in the wound, of leaving it for one to three hours entirely without dressing, thus allowing it to dry, and indeed encouraging the process by blowing upon it by means of a bellows or similar apparatus. As a result the vitality of the flaps is preserved throughout, nor was he troubled by the loosening of some

portions of the transplanted skin at the first dressing. To avoid the maceration occasioned by protective of oiled silk, or other smooth surface, applied directly over the transplanted skin,—in other words, to keep the wound surface perfectly dry and at the same time to get rid of secretions,—Trinka covers the whole transplanted area with a light layer of europhen powder (which is dusted on with a fine brush, or insufflated through a tube). Over this is placed gutta-percha thinly coated with vaseline. This dressing overlaps the freshened area by one inch in all directions. Between this dressing and the wound surface some portions of wick are laid for the purpose of carrying away secretions by capillary traction, and the gutta-percha is then secured to the skin by means of chloroform applied to its borders. Over this is placed a layer of wood fibre, then of cotton, and finally a muslin bandage is applied. This dressing is not allowed to remain longer than two days, and on each repetition the wound surface is dried thoroughly. The results of this dressing were in all cases most satisfactory.

THE TREATMENT OF GONORRHŒA IN THE MALE.

SAALFELD (*Medicinisch-Chirurgisches Centralblätt*, No. 17, 28 Jahr, 1893) classes gonorrhœa with the eruptive fevers in the sense that it is an affection from which few adult males have been spared. He also believes that the therapeutics of this affection is but little understood, and calls the attention of the medical profession at large to the fact that dancing, riding, and violent gymnastic exercises are not advisable during the inflammatory stage of the disease. He further calls attention to the suspensory bandage during the day, and to prevent soiling of the linen by the discharge, covers the meatus with absorbent cotton and wraps the penis in repeated folds of linen cloths. He states that cheese is a powerful excitant to erections, and hence, very rationally, advises against its use during the earlier stage of gonorrhœa. Against painful erections he advises camphor, lupulin, monobromate of camphor, and particularly the combination of antipyrin with bromide of potassium, 15 grains of the former to 45 grains of the latter. As for the local treatment, in recent cases this should be confined to cold or lukewarm local washings, continued for five to fifteen minutes three to six times a day. As to the injections, the one to be preferred in the first place is a one-per-cent. solution of sulphate of thallin, to be weakened if it occasions much burning. The strength of the solution is gradually increased as the discharge lessens. The injection is repeated four to six times a day. If this is not efficient, a solution of sulpho-carbolate of zinc 2 to 3 parts to 1000, or a mixture made up of zinc sulphate $\frac{2}{10}$ of 1 part, acetate of lead $\frac{4}{10}$ of one part, and distilled water 100 parts, or sulphate of zinc, carbolic acid, and alum each .2 or .3, water 100 parts, or permanganate of potassium .3 to 100, or resorcin 1 or 2 to 100, or solution of tannin .25 to .5 to 100, may be used as injections. In addition, salol, oil of santal, copaiba, and cubebs can be given by the mouth.

THE TREATMENT OF SUPPURATIVE BUBOES.

OTIS (*Journal of Cutaneous and Genito-Urinary Diseases*, vol. vi., No. 5) treated sixteen suppurating buboes according to the following method. The skin for some eight or ten inches about the affected area was rendered thoroughly aseptic by scrubbing with green soap, washing with sulphuric ether, and then douching with a solution of mercuric chloride 1 to 1000. A narrow bistoury was then inserted into the abscess cavity, and the contents gently but thoroughly squeezed out. The cavity was irrigated with a solution of mercuric chloride 1 to 1000, and immediately filled to moderate distention with warm iodoform ointment (ten per cent.), care being taken not to use a sufficient degree of heat to liberate free iodine. The syringe used for introducing the ointment was the ordinary cone-pointed, glass, clap syringe. The plunger being removed, the barrel, gently warmed in the flame of an alcohol lamp, was filled with the ointment by means of a spatula, and the plunger replaced. On finishing the injection, at the instant of withdrawing the syringe from the wound, a compress wet with cold bichloride solution was applied, which instantly solidified the ointment at the orifice, preventing the escape of the contents of the abscess cavity. A large compress of dry bichloride gauze was then applied, covered by a protective dressing of cotton, and retained by means of a firm spica. The patient was requested to return at the end of four days. If all was well at this time, the dressing was simply reapplied; but if there were any evidences of inflammatory action, the wound was thoroughly irrigated and cleansed, and the injection repeated.

The advantages claimed for this procedure are,—

1. It is simple and safe.

2. In suitable cases cure, as a rule, seems to be more rapid than by any other method.

3. The patient is not prevented from going about during treatment.

4. The first gland being rendered thoroughly aseptic, renders it less likely that other glands in the chain will become infected (?).

5. It leaves no tell-tale scar.

6. It in no way interferes with the performance of any subsequent surgical procedure, if such should be deemed advisable.

In Otis's cases, as a result of this treatment, nine were cured in six days, three in twelve days, one in fourteen days, one in twenty-three days, and two deserted during treatment.

REMOVAL BY ELECTROLYSIS OF AN EXTENSIVE HAIRY NÆVUS OF THE FACE.

Fox (*Journal of Cutaneous and Genito-Urinary Diseases*, vol. xi., No. 5) reports a case of hairy nævus of the face so large that removal by the knife would have occasioned striking deformity. He believes in such cases the use of the electrolytic needle is the only method which will remove the unsightly growth and leave the skin in a nearly, if not quite, normal condition. The satisfactory result usually attained by the use of this method, and so often missed by the employment of various caustics, is due to the fact that no destructive agent can be kept under control to the extent which is possible in the use of electrolysis.

The particular case reported by Fox was one in which the growth occupied a portion of the right cheek, involved the whole of the lower eyelid, and extended as far as the ridge of the nose. It was raised and verrucous in appearance, and was mostly covered with a growth of coarse, dark hair, which the patient kept short by the use of scissors. In the centre of the patch there was a mass of dry, blackish, friable substance projecting a half-inch or more, and evidently partaking of the nature of a cutaneous horn.

The treatment consisted in carefully passing a fine, flexible steel needle connected with the negative pole of a galvanic battery through the most superficial portion of the growth, the circuit being completed by the patient grasping a moist sponge attached to the positive electrode This was repeated until the electrolytic destruction of tissue reduced the growth to the level of the surrounding skin, removed the pigmentation, and to a certain extent destroyed the hypertrophied hair-follicles. The slight growth of hair which persisted after the affected skin had become smooth and comparatively normal in color was destroyed by the introduction of the electrolytic needle into each separate follicle according to the method employed in the treatment of superfluous hair upon the chin and elsewhere.

The battery used consisted of forty Law cells, with a rheostat reducing the current to a strength of from three to five milliampères. The effect of the electrolytic action around the needle was to produce a destructive inflammation, which was quickly followed by a thin superficial crust, which dried and fell usually in a few days.

The long-continued treatment in this case was by no means painless, especially upon the eyelid; but the patient, animated by his desire to have the unsightly growth removed, never once made the slightest complaint. The operations, which extended over a period of nearly four years, were often repeated week after week; while, on the other hand, intervals of several months were allowed to elapse. At the end of the first year about one-half of the growth was destroyed, and had it not suited the convenience of both patient and physician to proceed slowly with the treatment, doubtless the whole of the growth might have been removed in much less time. In the treatment of such a case, however, the highest degree of success depends upon taking sufficient time, and any undue haste is very liable to lead to the unnecessary formation of deep and permanent cicatrices. To completely remove the disfiguring growth and to leave the affected skin in the best possible condition, time is indispensable, and electrolysis seems to afford the safest and surest method of accomplishing the desired result. It may be added that not only is time required to achieve the result, but a considerable amount of patience on the part of the physician and persistent pluck on the part of the patient. With these at command, a hairy nævus upon any portion of the body and of any size can be removed and the skin left in an almost normal condition.

BLOODLESS AMPUTATION OF THE HIP-JOINT BY A NEW METHOD.

SENN (*International Journal of Surgery*, vol. vi., No. 4) amputates the hip-joint by the following method:

The external incision is made about eight inches in length, parallel to the long axis of the femur, directly over the centre of the great trochanter, extending about three inches above the upper border of the trochanter.

When the knife reaches the trochanter from above downward, its point should be kept in contact with the bone the whole length of the remaining part of the incision. The margins of the wound are now retracted and any spurting vessels secured by applying pressure forceps. The next step of the operation consists in drawing the body down so that the pelvis rests upon the lower edge of the table, the pelvis being tilted sufficiently upon the opposite healthy side to facilitate the next step of the operation. The trochanteric muscular attachments are now severed close to the bone. The division of the tendon of the obturator externus requires special care. The thigh is now flexed, strongly adducted, and rotated inward, when the capsular ligament is divided transversely at its upper and posterior aspect. The remaining portion of the capsular ligament is severed, while the thigh is brought back to a position of slight flexion. After complete division of the capsular ligament, the thigh is rotated outward and the ligamentum teres divided; if this cannot be readily done, the head of the bone is forcibly dislocated upon the dorsum of the ilium by flexion, adduction, and rotation inward of the thigh. After dislocation has been effected, the trochanter minor and upper part of shaft of femur are cleared by using alternately the scalpel and periosteal elevator. By pushing the femur through the opening as much of the shaft can be cleared as may be desired for the purpose of making a low amputation. Up to this point, if the surgeon has kept close to the bone, there is very slight hemorrhage. Further loss of blood during the subsequent steps of the operation is prevented by elastic constriction applied in the following manner: The limb is brought down in a straight line with the body, the thigh slightly flexed, so as to push the upper free end of the femur forward into and beyond the wound, when a long, stout hæmostatic forceps is inserted into the wound behind the femur and on a level with the trochanter minor when in normal position; the instrument is pushed inward and downward in a direction about two inches below the ramus of the ischium and just behind the adductor muscles. As soon as its point can be felt under the skin in this location an incision is made through the skin about two inches in length, through which the instrument is made to emerge. After enlarging the tunnel made in the soft tissue by dilating the branches of the forceps, a piece of aseptic rubber tubing, three-quarters of an inch in diameter and about three or four feet in length, is grasped with the forceps in the middle, and is drawn along the tunnel as the forceps is withdrawn. After this has been done, the rubber tube is cut in two at the point where it was grasped by the forceps. With one-half of the tube the anterior segment of the thigh is constricted sufficiently to completely interrupt both the arterial and venous circulation. Prior to constriction the limb is rendered bloodless by elastic compression, or by keeping it in a vertical position for a few minutes, or both of these methods are combined in preventing unnecessary loss of blood. The elastic constrictor is either tied, or, still better, after having secured the necessary constriction, both tubes are caught and held by a strong pair of forceps at a point where they cross each other. The posterior segment of the thigh is constricted by the remaining rubber tube, which is drawn sufficiently tight behind, when the ends of the tube are made to cross each other, and are brought forward and made to include the anterior segment, when they are again firmly drawn and tied, or otherwise fastened, above the first constrictor. As the anterior segment of the thigh contains the principal blood-vessels, this method of applying the posterior constrictor furnishes an additional security against hemorrhage from the large vessels when divided by the circular incision.

The long anterior and short posterior flaps are best adapted for a useful stump and efficient drainage. In making the anterior flap the incision is commenced at the lower terminus of the straight incision; dividing the tissues down to the muscles, it is carried downward; then, in a gentle curve across the anterior aspect of the thigh, embracing about two-thirds of the circumference of the thigh, it is finally carried upward to a point on the inner side just below the opening in the skin occupied by the constrictors. The posterior flap is made in a similar manner, but about one-third shorter. The flaps are now reflected to the point where the muscles are to be divided, and should always include the deep fascia. The flaps are to be held out of the way while the operator completes the amputation by dividing the muscles with an amputating-knife. This last incision will correspond to a point on the femur to where the bone has been deprived of soft parts. The incision through the muscles should be slightly conical, with the apex of the cone directed upward, and corresponding to the location of the tube made by the enucleation of the femur.

The sciatic nerve is now resected to the extent of an inch or more, and the femoral artery or arteries tied with catgut in the usual manner. The femoral artery and vein are now isolated,

and a second catgut ligature, including both of these vessels, applied half an inch higher up. In this manner the vein is ligated, while the artery is secured by a double ligature, which places the end of the vessel in the best possible condition for definite closure and cicatrization. The intermuscular septa are now examined, and any vessels that can be seen are tied. While the posterior constrictor is removed, the posterior half of the stump is firmly compressed by applying a hot, moist compress of aseptic gauze, over which manual pressure is made for a short time for the purpose of diminishing parenchymatous oozing. After removal of the compress, additional bleeding vessels are secured. The anterior part of the amputation surface is treated in a similar manner; after the removal of the anterior constrictor, but few, if any, additional ligatures will be required here. The double constrictor presents many advantages in the prevention and treatment of hemorrhage in this amputation. Slipping of the constrictors is an impossibility, and they control the hemorrhage absolutely, while their proper use divides the wound into two halves, each of which is separately treated, thus reducing the loss of blood to a minimum.

The following conclusions represent the principal advantages of the bloodless amputation at the hip-joint as described:

1. Preliminary dislocation of the head of the femur, and clearing the shaft of this bone of all soft tissues down to the proposed line of amputation through an external straight incision, requires less time, and is attended by less hemorrhage and shock, than when this part of the operation is done after circular amputation, as advised by Von Esmarch and others.

2. The external straight incision is the same as Von Langenbeck's incision for resection of the hip-joint, differing only in length.

3. After dislocation of the femur, the soft tissues are tunnelled with a hæmostatic forceps, which is entered through the external wound on a level with the trochanter minor to a point on the inner aspect of the thigh behind the adductor muscles and about two inches below the ramus of the ischium, where a counter-opening two inches in length is made.

4. The bloodless condition of the limb should be secured by elastic compression or vertical position prior to tying the elastic constrictors.

5. An elastic tube three-quarters of an inch in diameter and about four feet in length is grasped with the forceps in the centre and drawn through the tunnel made by the forceps.

6. After dividing the elastic tube in the centre, the base of the thigh is constricted by drawing firmly and tying the anterior constrictor in front of the anterior section, while the posterior constrictor, after being drawn tight behind the posterior section, and having its two ends crossed, is made to encircle the whole thigh, when the ends are again drawn firm and tied or otherwise secured above the anterior constrictor.

7. A long and a short oval cutaneous flap should invariably be made in all amputations at the hip-joint.

8. In preference a long anterior and a short posterior flap should be selected.

9. The transverse section through the muscles should be somewhat conical in shape, the apex of the cone corresponding to the tunnel made by enucleation of the upper portion of the shaft of the femur.

10. Resection of the end of the sciatic nerve and ligation of all vessels that can be found should be done before the removal of the constrictors.

11. The femoral arteries should be secured by a double catgut ligature half an inch apart, the one on the proximal side including also the accompanying vein.

12. The posterior constrictor should be removed first, and all hemorrhage arrested by ligation and compression before the anterior constrictor is removed.

13. The upper part of the wound corresponding to the acetabulum should be drained with an iodoform gauze tampon, and the remaining part of the wound by one or more tubular drains.

GALLANOL IN PSORIASIS AND ECZEMA.

CAZENEUVE and ROLLET (*Lyon Médical*, No. 15, tome lxxii., 1893), after a review of the various remedies employed in psoriasis and eczema, none of which have proved satisfactory, warmly commend gallanol, the anilide of gallic acid, as a valuable application, because of the reducing and antiseptic properties it possesses. Moreover, it is harmless, ½ drachm administered to man being without toxic effect. It is but slightly soluble in water, and hence can be absorbed by the skin to but a slight extent.

Gallanol is obtained by boiling tannin or gallotannic acid with aniline. Dilute hydrochloric acid is added; crystals are separated and purified by a series of crystallizations in dilute alcohol. Gallanol thus obtained loses two molecules of the water of crystallization at the boiling-point. It is white, crystalline, of a slightly-bitter taste, and will not distil without

decomposition. It is very soluble in boiling water, alcohol, and ether, but insoluble in benzine.

The drug is employed in powder and in salves. As a powder, it is white, impalpable, and, when pressed between the fingers, somewhat adhesive. A powder made up of gallanol and talc dusted upon chronic eczematous patches quickly dries these and calms the itching. As a salve, it is mixed with vaseline in the proportion of 3 to 10 parts. These can be applied to psoriasis lesions in the hair and on the face, or an eczema on the face, or involving the extremities. Its action in cases reported by the author is strikingly favorable. In some cases the lesions, after being cleansed of scales or scabs, were painted with a mixture of gallanol and chloroform or alcohol, then covered in with traumaticine (chloroform and gutta-percha); in other cases, although the lesions are somewhat inflammatory, they are simply painted with traumaticine and gallanol. This drug causes no redness, inflammation, or pigmentation of the skin, hence can be used in lesions of the face. It does not stain the linen and has no odor. In a week the skin-affections in which it has been used terminate in cure.

TREATMENT OF TETANUS.

SCHWARTZ (*La Tribune Médicale*, 26 année, No. 14) reports four cases of traumatic tetanus coming under his observation. The first case was wounded by being thrown from a cart. The fingers of the right hand were crushed. The wound was dressed with antiseptic precautions, and an effort was made to preserve the injured parts. On the following day, however, the whole hand became acutely inflamed and general temperature ran up. After some efforts at drainage the forearm was amputated. Two days after this operation acute tetanus developed, death following in three days, in spite of the employment of chloral and morphine. In addition to the wound of the hand there was also a contused wound of the face.

The second case suffered from a contused wound of the thenar eminence. Cicatrization was complete. Twelve days after the accident the first symptoms of tetanus developed. Chloral and morphine were administered in full doses, and at the same time Bazelli's injections were driven into the forearm. In eight hours there was some improvement.

The third case had his leg broken by a dirt-wagon. Fifteen days after the accident tetanus developed. This was treated by chloral and subcutaneous injections of immunized horse-serum. The patient recovered in a year.

The fourth case had his leg fractured by the wheel of a wagon. Five days later tetanus developed, and the patient perished, in spite of the use of chloral and horse-serum.

From a therapeutic stand-point it is interesting to note that in the first case amputation, practised before the first symptoms of tetanus, was not successful in saving the patient. It is true that there was at the same time a wound of the face which might possibly have been the seat of original infection. As to the injections of serum (painful and always occasioning marked hyperæsthesia), they did not help the patient, in whom tetanus developed in its most fulminant form. The *rôle* of such injections would seem to be rather prophylactic,—that is, they might be administered at the time of the first dressing of the wound infected by the earth.

Verneuil particularly insists upon rigorous antisepsis as a means of preventing tetanus, since thus are destroyed the septic brioles which accompany the bacillus of tetanus, and it considerably diminishes the virulence of the latter, even if it does not render them completely innocuous. In all cases wounds soiled by earth should be left open to enable the surgeon to treat them thoroughly by means of atomization of antiseptic solutions.

THE TREATMENT OF MALIGNANT TUMORS BY REPEATED INOCULATIONS OF ERYSIPELAS, WITH A REPORT OF TEN ORIGINAL CASES.

COLEY (*American Journal of the Medical Sciences*, May, 1893) has collected a table of thirty-eight cases of malignant disease in which erysipelas cured either by accident or intent. Of these thirty-eight cases the erysipelas occurred accidentally in twenty-three cases and as the result of inoculation in fifteen. Seventeen of these cases were carcinoma, seventeen cases were sarcoma, four either sarcoma or carcinoma. The immediate and final results were as follows:

Carcinoma.—Of the seventeen cases, three were permanently cured. In addition, one case of probable carcinoma (Hutchinson's) was well five years after the attack of erysipelas. Of the remaining thirteen, ten showed improvement, which, although temporary, undoubtedly added to the life of the patient in most cases. One case (Janike's) died, as a result of the erysipelas, on the fourth day.

Sarcoma.—In turning to sarcoma, we find

the curative action of the erysipelas even more marked. Of the seventeen cases of sarcoma, we find seven, or forty-one per cent., well and free from recurrence from one to seven years after the attack of erysipelas. Nearly all of these seven cases have a remarkable history.

The remaining four were as follows: The first (Biedert's) was a very large round-celled sarcoma, involving mouth, face, nose, and orbit of a child ten years of age. The features were greatly distorted, and the general condition so bad that death from exhaustion was anticipated soon. While in daily expectation of being obliged to do a tracheotomy, a severe attack of facial erysipelas occurred. The tumor disappeared, as if by magic, during the course of the erysipelas. The child recovered, and at the end of a year was perfectly well, with no trace whatever of recurrence.

The next case (Bruns's) was a melanotic sarcoma of the breast, with entire disappearance, and there has been no recurrence.

The sixth case (Bruns's) was a multiple sarcoma of the face that entirely disappeared after an attack of facial erysipelas, and did not return.

The seventh case (Kleeblatt's) was a lymphosarcoma of the neck, very large; the erysipelas in this case being the result of inoculation.

In addition to these seven cases there was one other, a probable sarcoma of the breast, that was cured.

Ten of the remaining eleven showed more or less marked improvement; in some cases the tumor entirely disappearing, and not recurring for several months.

One case died as a probable result of the erysipelas, which was in this instance accidental.

To put the result still more briefly: In carcinoma,—seventeen cases,—three cures, seventeen and six-tenths per cent.; one death, five and nine-tenths per cent.; four sarcoma or carcinoma, two cured.

Grouping by themselves, then, the cases where the erysipelas was artificially produced, we find seven cases of carcinoma, one cure, or fourteen and three-tenths per cent; and eight cases of sarcoma, two cures, twenty-five per cent. These cases were as follows: Fehleisen, two; Kleeblatt, two; Busch, one; the remaining three cases being the author's.

These figures may then be taken to fairly represent the curative effect upon carcinoma and sarcoma in the worst cases; and when we reflect that in nearly every instance the tumor was not a primary growth, amenable to operative treatment, but either a recurrence after operation had been tried and failed, or from its nature inoperable, then and then only are we in a position to fully estimate the importance and value of erysipelas as a curative agent.

We have purposely excluded in the foregoing analysis eight cases of the writer's treated by repeated injections of erysipelas cultures, which, without producing erysipelas, caused marked improvement in the tumors. These cases should be grouped by themselves, and they bring us back to the question regarding the nature of this curative principle, which, however variable its action, must be regarded as having a constant relation to erysipelas.

The clinical facts already mentioned, that a number of malignant tumors have disappeared as a result of an erysipelas in another region of the body, coupled with the very recent experiments of Professor Spronk and his co-workers in Leyden, settle the point beyond dispute. In the experiments referred to, twenty-six cases of malignant disease (eight sarcoma, eighteen cases carcinoma) were injected subcutaneously with the toxic products of the streptococcus of erysipelas, the germ itself having been destroyed and removed.

In every case the injections were made in parts remote from the tumor, usually the gluteal region. Nearly all of the cases of sarcoma showed marked improvement, and in some cases the tumor entirely disappeared. It is true, recurrence usually took place, yet in one case (Remsen's), a large inoperable sarcoma, the primary growth entirely disappeared, the secondary growths were reduced to very small size, and there had been no recurrence up to the publication of the paper.

The effect upon carcinoma was very slight, and only in one case was the beneficial action marked.

It should be noted that very small doses were used in these cases, ½ to 1 gramme.

In no case was the reaction very great, 103° F. being the highest temperature recorded, the condition usually becoming normal at the end of twenty-four hours. Spronk himself admits that better results have been obtained from larger doses, yet he preferred to err on the side of safety.

Coley began the treatment of his cases by repeated injections of fluid cultures more than eighteen months ago, and has used it in nearly all his cases. In most cases he injects deeply into the tumors themselves. The doses employed have varied with the age and virulence of the cultures, but he has aimed to obtain a good reaction, a temperature of 104° or 104.5° F. frequently following. The reaction has usually

subsided within thirty-six to forty-eight hours after the injection, unless erysipelas was produced. The effect upon the tumors was more marked in the cases of sarcoma than carcinoma, but all cases showed a cessation of growth and a more or less marked diminution in size. Several sarcomatous nodules, some nearly one inch in diameter, disappeared entirely. It is evident that in these cases the effects produced were chiefly due to the toxic products of the streptococci.

In view of these results, as well as those of Spronk, it may be considered definitely proved that a portion, if not all, of the benign influence rests in the toxic products of the erysipelas germ rather than in the germ itself. The fact that, thus far, the results from an attack of true erysipelas have been far more brilliant and permanent, prove that either the germ itself or its continued action plays an important *rôle*, or, what is quite as probable, we have not yet learned how best to isolate the toxic principles and to use them in the most efficacious doses. It is more than probable that sterilizing cultures by heat changes the chemical relations of the toxalbumins. The writer is at present making experiments with filtered cultures, the germs having been removed by means of a Kitasato filter, without subjecting the fluid filtrate to heat. If the virtue of the erysipelas lies entirely in these toxic principles, the treatment of malignant disease will be much simplified, as there will be neither the danger from the erysipelas nor the necessity for isolation.

In speaking of the dangers associated with erysipelas, Coley states that the term "erysipelas" has been used in a very loose way, including many cases of cellulitis and septic infection. He does not believe in the identity of the streptococcus of erysipelas and the streptococcus pyogenes, although acknowledging that the opposite opinion is held by many of the leading bacteriologists. Those who hold to the identity of the two germs base their opinion largely upon the close resemblance, morphologically and biologically, and they claim that the clinical differences are due to the different sites of infection and variations in virulence of cultures; that the same germ in the outer layers of the skin will produce true erysipelas; that injected deeply into the tissues it will cause cellulitis and multiple abscesses. During the course of the writer's experiments he has injected, upward of one hundred and fifty times, pure cultures of the streptococcus of erysipelas, of almost every degree of virulence, into the (human) tissues, superficially and deeply. In but two cases did an abscess follow, and in one of them a careful bacteriological examination was made of the pus (before it had become contaminated), and mixed cultures were found, the staphylococcus aureus being present with the streptococcus.

There appears to be good ground for believing that when suppurative processes are associated with erysipelas a mixed infection is present, and that there is a real and important difference between the germ of erysipelas and the streptococcus pyogenes, in spite of their close resemblance.

The fact that they are pathogenic for different animals respectively, and also their different action with reference to lactic acid, are other points against their identity.

Finally, the author concludes as follows:

1. The curative effect of erysipelas upon malignant tumors is an established fact.

2. The action upon sarcoma is more powerful than upon carcinoma,—in about the ratio of 3 to 1.

3. The treatment of inoperable malignant tumors by repeated inoculations of erysipelas is both practicable and not attended with great risk.

4. The curative action is systemic, and probably due chiefly to the toxic products of the streptococcus, which products may be isolated and used without producing erysipelas.

5. This method should not be employed indiscriminately until further experiments have proved its limitations.

TREATMENT OF RINGWORM OF THE SCALP.

EDDOWES (*British Medical Journal*, April 15, 1893) employs in this affection sulphur and vaseline ointment, one drachm to the ounce, olive oil, compound chrysarobin ointment, containing twenty-five grains of this drug to the ounce, the same proportion of ichthyol, and ten grains of salicylic acid. His plan of treatment is as follows: For the first week the sulphur ointment is applied daily. Hair to be cut as short as possible with scissors over the whole scalp. Scalp to be washed two or three times during the week with soap or soda and water. A cap to be worn night and day.

The second week the chrysarobin ointment to be rubbed well into a few patches, but not over too wide an area or in such a quantity as to run down the face, neck, or ears; the rest of the scalp to be dressed with the sulphur ointment. If the two ointments become mixed up a little it is of no consequence. A piece of oiled silk or gutta-percha tissue a little larger

than the hairy scalp is then placed over the ointment, and a tightly- or, rather, a closely-fitting skull cap is then fastened over all. All ointment is to be thoroughly wiped off the scalp and tissue, or oiled silk, and fresh ointment applied daily. The area to which chrysarobin ointment is to be applied must be regulated according to the condition of the skin and the comfort of the patient from day to day. If the skin be very intolerant of the remedy, it should be cleansed by wiping with tow or cotton-wool, and be dressed with the sulphur ointment instead. If the chrysarobin be well borne, the area to which it is applied is daily extended till the whole scalp is dressed with it, but never for more than four days consecutively. At the end of four days in any case, and sooner if necessary on account of irritation, the sulphur is entirely substituted for the "dark" (chrysarobin) ointment. During the last night of the week the scalp is well oiled, next morning well washed with soft soap or soda and water, dried, oiled, and the patient brought for inspection.

This plan of treatment should be continued until a cure is effected.

The most important practical points were (1) thorough cleansing of the scalp before the employment of chrysarobin; (2) the removal of secretion and scales by means of the sulphur ointment and oil before redressing with chrysarobin. As Unna states, the skin should be brought back to its normal color before the chrysarobin is reapplied. This is a point of the highest importance. If any chrysarobin find its way on to the forehead, neck, or ears, the parts should be dressed with vaseline, zinc ointment, dusting powder, or, still better, with zinc gelatin and cotton-wool. The cap should fit closely and come well over the scalp, but not constrict any part.

Dr. Phineas S. Abraham stated that the general experience still was that certain cases of tinea tonsurans were as intractable as ever. After employing many methods, he has during the last few years used an inunction night and morning, by means of a stiff brush, of a pomade containing lanolin and vaseline, of each half an ounce, carbolic and salicylic acids, of each half to one drachm, the scalp being shaved occasionally, kept closely cropped, and always greasy. A cap to be constantly worn (but changed, and, if linen, boiled daily), and the head to be washed once a week with an antiseptic soft soap. With the more obstinate cases he employed occasional applications of carbolized liniment, or of iodine, or mercuric chloride or iodide, grains one to two, can be added to the above ointment. He objected to Unna's method on account of time consumed and the special manipulations required in carrying out the details. He also believes prophylaxis insufficiently attended to.

Dr. Liveing called attention to the importance of children carrying their own combs and brushes when going to hair-dressers.

Dr. Harrison spoke of the difficulty in curing every case of ringworm, because there were often isolated fertile stumps existing.

Dr. Norman Walker thought Unna's chrysarobin treatment was no better than any other treatment, and that it, like salicylic acid, owed its use mainly to reducing power. As regards mercury, while not greatly in its favor, he thought it useful, but considered copper should have more frequent trials. He agreed with Dr. Eddowes that there were many varieties of ringworm, and considered that some information as to prognosis might be got from differentiating varieties.

PARENCHYMATOUS INJECTIONS IN TONSILLITIS.

HEUBNER (*La Médecine Moderne*, 4 année, No. 32, 1893) states that investigations have shown that there always exists in the tonsillar crypts a variety of fungous growths. Ordinarily these occasion no trouble, but following an erosion or other cause of local irritation they occasion inflammation usually called follicular tonsillitis. If one of these swollen tonsils is injected with a solution of carbolic acid (2 to 100) the action is usually prompt and favorable. Eight drops of this solution may be employed. The temperature falls almost immediately, and within the hour the patient feels entirely well. A second is rarely necessary.

Sahli also injected carbolic acid in cases of follicular and diphtheritic tonsillitis. He has recently employed trichloride of iodine, a chemical compound which is powerfully antiseptic and not at all toxic. In diphtheria the injections are made into the false membrane and beneath it into the parenchyma of the tonsil. A solution of the strength of 2 to 1000 is used. The injections occasion very little pain.

Heubner stated that he had used injections of carbolic acid for thirteen years, and that this therapeutic means had distinctly lowered his mortality in cases of scarlatina and dipththeria.

PLASTIC OPERATION FOR CURE OF DEFORMITY OF THE PENIS RESULTING FROM GANGRENE.

KOERTE (*La Médecine Moderne*, 4 année, No. 32, 1893), for the cure of deformity fol-

lowing gangrene of the penis, with loss of a considerable portion of the cavernous bodies, filled in the space which had been destroyed by making a bridge of tissue in the scrotum, beneath which the penis was drawn. Eight days later one end of the bridge was divided. Six days later the other end of the pedicle was cut. The whole of the flap, which became adherent to the raw surface of the penis, retained its vitality.

Hirschberg, in transplanting large flaps, first applies Esmarch's bandage, then flagellates the portion of the skin destined for transplantation. The flap is freed, with the exception of the pedicle, and sutured in position. Next the Esmarch bandage is removed, and the flap becomes very hyperæmic. The pedicle is divided, the flap finally fitted in its permanent position, and a light pressure bandage applied. After five days the flap looks as though it were well nourished, then the epidermis becomes somewhat dark; this disappears in a few days, the skin regains its normal appearance, and cure is prompt.

Reviews.

A Hand-Book of Local Therapeutics. General Surgery, by R. H. Harte, M.D.; Diseases of the Skin, by Arthur Van Harlingen, M.D.; Diseases of the Ear and Air-Passages, by Harrison Allen, M.D.; Diseases of the Eye, by George C. Harlan, M.D. Edited by Harrison Allen, M.D.
Philadelphia: P. Blakiston, Son & Co., 1893.

We are told in the preface of this compilation that one of the chief reasons for its production is that no text-book is available in which the local action of drugs is not subordinated to their general action. We are also told that the book is intended more as a guide to treatment than as a disquisition on local medication. This effort has been adhered to, although in some respects the book falls short of what we expected.

There is no doubt that the work has been most carefully edited, and that the statements it contains are correct as statements, but we miss from its pages that which we most hoped to glean,—namely, information concerning the proper use of a large number of remedies which are employed in local therapeutics. Most of the year-books tell us of the recommendations which have been made by clinical experimenters, and also give us information as to the strength of the solutions or doses which should be employed. We had hoped that this book would not only contain such information, with the good separated from the bad, but that the editors would from their rich experience add that they had found this or that recommendation of a foreign author serviceable in their own hands.

A book on local therapeutics demands above all other things the most absolute and definite statements as to exactly the condition indicating a given drug, and equally absolute statements as to the dose or strength of the drug which should be employed, and such this book rarely gives. It is true that there are many prescriptions through these pages giving the quantities of the various medicaments, but with them there is too often no definite statement of the exact time of their application. The articles on the eye are not open to this objection, much care being taken to make concise and definite statements wherever it is possible. Even here, however, personal preferences are not expressed as frequently as is desirable.

To those desiring a concise, but by no means complete, statement of recent literature in local therapeutics, this book will be useful. To those who wish to have in their hands a book which will tell them the best thing to do and the best time to do it, it will also prove of service.

Fermentation, Infection, and Immunity. A New Theory of these Processes. By J. W. McLaughlin, M.D.
Austin, Tex., 1892.

This book discusses in a manner which is somewhat too deep for the ordinary practitioner the questions indicated by its title. The work shows a very considerable amount of thought upon the subject of which it treats, but we fear will not receive the attention which the author's labors deserve.

A Practical Treatise on Materia Medica and Therapeutics, with Especial Reference to the Clinical Application of Drugs. By John V. Shoemaker, A.M., M.D. Second edition. Revised. In two royal octavo volumes. Vols. I. and II.
Philadelphia and London: The F. A. Davis Publishing Company, 1893.

In the publication of the second edition of his useful book, Dr. Shoemaker has taken pains to thoroughly rewrite and remodel the first volume and to add many points of interest to Vol. II. We notice that in this second edition he still employs the word "officinal," although the Convention for the Revision of the Pharmacopœia for 1890 directed that the word "official" should take its place, and in the Pharmacopœia which will appear in a few months this alteration will be made.

The first volume contains, in addition to the subject of electro-therapeutics, classification of remedies, prescription-writing and formulæ, chapters upon climatology, diet and disease, hypnotism and suggestion, and even one upon music as a therapeutic measure.

In Vol. II. drugs are considered, and the pages are dotted by numerous prescriptions illustrating what Dr. Shoemaker believes to be the best way of prescribing the various remedies. In this department the book is unusually strong, but in that of physiological action we think it is hardly as complete as it should be, particularly when so thorough a discussion of other matters concerning therapeutics has been introduced as to necessitate the publication of the work in two volumes.

The alphabetical arrangement is followed, and while a number of new drugs have been introduced into the book, it has been found necessary to add a number of others in an appendix. We notice that the author has taken "the bull by the horns" in the matter of recommending preparations of drugs made by special firms or by special processes, and does not hesitate to indicate the manufacturers from whom the remedies should be obtained. In many instances he mentions preparations which, while they are only sold to the medical profession, are practically proprietary, in the sense that they cannot be obtained from any one save their originators. We do not mention this in the way of criticism, but simply as a matter of interest, as it indicates that this author, at least, believes that where he has found a preparation useful it matters little to him what its source may be.

No doubt the second edition of Dr. Shoemaker's book will be as popular as was the first.

INDEX CATALOGUE TO THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. Authors and subjects. Vol. XIII. Sialagogues to Utugin. Washington,: Government Printing-Office, 1892.

Vol. XIII. of this magnificent monument to the literature of American medicine and surgery, containing, as it does, records of practically the entire medical literature of the world, marks another advance in the work of its editor, Dr. John S. Billings. There is nothing better for the reviewer to do than to call the attention of the profession to the great value of the work which is done in the Surgeon-General's office of the United States army. The work—which gives the American medical profession the best reference catalogue of medical books, and also places all medical writers in foreign countries under a debt of gratitude to Uncle Sam—is one of which we may well be proud.

A MANUAL OF CHEMISTRY, INORGANIC AND ORGANIC. By Arthur P. Luff, M.D. Illustrated. Philadelphia: Lea Brothers & Co., 1892.

This book is one of a series, republished in this country, of small text-books for medical students, and is a member of the same list as the three volumes of Treves's "Manual of Surgery" and Klein's "Elements of Histology."

There are so many useful publications of this kind by American authors that Dr. Luff's book can hardly have a large sale in this country, although its contents render it deserving of such patronage.

THE DISEASES OF THE NERVOUS SYSTEM. A TEXT-BOOK FOR PRACTITIONERS AND STUDENTS. By Ludwig Hirt. Translated by August Hoch, M.D., and Frank R. Smith, M.D. With introduction by William Osler, M.D. Illustrated. New York: D. Appleton & Co., 1893.

We have already reviewed in the columns of the THERAPEUTIC GAZETTE in the last few months a number of very good books upon diseases of the nervous system, and the author of the present work begins his preface by a statement recognizing the fact that a vast number of text-books on nervous diseases already exist. He thinks, however, that perhaps he has been able to present the profession with the facts concerning diseases of the nervous system in a somewhat different light from that which other authors have given them, and it is quite true that in the arrangement of the work he has departed from the common customs of authors who are dealing with nervous affections. Thus, very few members of the profession would expect to find locomotor ataxia classed under diseases of the general nervous system rather than among those of the spinal cord. Of course it is true that locomotor ataxia as a disease is more wide-spread, in one sense, than the mere lesions which we find in the posterior columns, but it is always of doubtful advantage to disassociate in the mind of the student, at least, the characteristics of the disease from the area in which its chief lesion is found. Scientifically, therefore, objection cannot be made to these methods of Dr. Hirt, of which we have given an example, although practically we think that such a classification renders the study of the nervous diseases more difficult. Most of the chapters are increased in value by copious bibliographies. The diagrams and illustrations are unusually good, and the translation has evidently been performed with accuracy and at the same time without

rendering the English involved. The book is partially Americanized, not only by its translation, but also by the preface of Dr. Osler, and can be cordially recommended with those of Dana and Gray.

DISEASES OF INEBRIETY.
New York: E. B. Treat, 1893.

The book before us bears the following title-page: "Disease of Inebriety from Alcohol, Opium, and other Narcotic Drugs: Its Etiology, Pathology, Treatment, and Medico-Legal Relations. Arranged and compiled by the American Association for the Study and Cure of Inebriety." No name of either author or editor is appended. However, in the introduction we learn that inasmuch as the demand for various papers by members of the American Association for the Study and Cure of Inebriety, and which were published at various times in the *Journal of Inebriety*, has been increasing, the Association, at its November meeting in 1892, resolved that its secretary be authorized to prepare a volume which shall contain the most reliable conclusions and studies by eminent authorities of all phases of the diseases of inebriety up to the present time. We are told, further, that this volume is in conformity with this resolution, and that it simply means to give the reader the best papers upon these subjects which have appeared. Further, that it is intended to represent the work of the Association and the character of the papers and discussions which have appeared in its journal. The introduction is signed by Dr. T. D. Crothers, secretary.

Some thirty-eight chapters upon various interesting topics directly connected with inebriety follow, but we are very much disappointed that not one of these chapters is signed by its author.

Notwithstanding the composite character of the book, the subjects are as systematically considered and as properly spaced as though they had been treated by one hand. The earlier chapters deal with the ancient and modern history of inebriety, the various forms of inebriety, the exciting causes, the relations between inebriety and other diseases, heredity, pathology, and treatment. Finally, the duty of the State in the care of inebriates, and general questions of irresponsibility in inebriety, are considered.

The position assumed throughout the book is that inebriety is a disease which should be studied and treated just as any other disease is studied and treated. The distinction is drawn between the accidental inebriates, the periodic inebriates, and the chronic inebriates. They are, in short, the views already made familiar to us chiefly by Dr. Crothers.

One of the most important questions of the present day is the care and control of inebriates, especially their control. The following suggestions are made:

"The inebriate should be arrested, if found intoxicated upon the street or any public place, or upon a warrant issued on due complaint of his family, or in case they failed to do their duty, by a committee of reputable citizens of the ward in which the inebriate is a resident, or by the officers of said ward. A warrant should be issued on complaint from any of said parties, by the proper justice, and the inebriate arrested.

"Proper testimony should then be secured as to facts concerning his inebriety from reputable medical and other sources. He should then be sent to an inebriate reformatory hospital or work-house, for the institution should include all these features. We are dealing with a diseased person, not a criminal, but as a pauper inebriate, without friends, or, if he has friends, without means.

"The pauper inebriate is now duly arrested. He must be restrained and controlled for some definite time in some institution. The period should not be less than one year; made longer, if necessary, by recommittal. The institution to which he is committed should be placed in the suburbs of the city or town, with convenient access to it. Abundant grounds should surround the building, or, better still, a farm should be the site of its location. Out-door occupation, so beneficial in the treatment of the chronic insane, would be no less so in the case of the inebriate. A competent medical superintendent, with suitable assistants, could readily conduct such an institution. Its inmates would be chronic inebriates; all insane persons, or those incurable from other diseases, should be sent to their proper asylums or hospitals."

Unfortunately, not only are the institutions necessary to carrying out this plan lacking, but even the laws are so framed that it is impossible to restrain a person who is an inebriate. Patients may, and sometimes do, commit themselves voluntarily to insane hospitals, but there is no provision of the law by which an inebriate can be forcibly detained. It is, perhaps, not too much to hope that some day State hospitals for the treatment of inebriety will become a reality, and that laws will be enacted which will enable the State to restrain the inebriate for a period sufficiently long to bring about a durable result.

PSYCHOPATHIA SEXUALIS, WITH ESPECIAL REFERENCE TO CONTRARY SEXUAL INSTINCT. By Dr. R. von Krafft-Ebing. Authorized Translation of the Seventh Enlarged and Revised German Edition. By Charles Gilbert Chaddock, M.D.

Philadelphia and London: The F. A. Davis Publishing Company, 1893.

This book of Krafft-Ebing, founded on wide experience, admirably written, and thoroughly scientific, is perhaps destined to accomplish some good by throwing light in dark places and popularizing knowledge in regard to phases of venereal perversion hitherto unsuspected even by the medical men. It is, however, a two-edged weapon, and will certainly accomplish much harm by suggesting means and methods of sexual indulgence to those who, without such knowledge, might have remained embryo perverts. It is perhaps true that facts, however revolting, should be known, and if it is desirable to publish such facts as are found in this book, it probably could not have been done with closer adherence to the true scientific spirit than is observed by Krafft-Ebing. It would seem, however, even to the liberal reviewer, that in many portions of the work there is an unnecessary dwelling on filthy details, probably rendered more conspicuous by being expressed in the Latin tongue. It may be true that this book will do more good than harm. Judging from the effect produced on a large medical class into whose midst this work was introduced at the busiest time of the year, this assertion could be disputed.

The motives of its author in putting it forth are not to be questioned. The translator has ably fulfilled his part, and the book now stands in the English tongue as a mine of information to those who would seek special knowledge of sexual perversion from a medico-legal standpoint, as a reliable guide-book to those in whom the sexual instinct is abnormally developed.

MODERN GYNÆCOLOGY. A TREATISE ON DISEASES OF WOMEN. By Charles H. Bushong, M.D. Illustrated. New York: E. B. Treat, 1893.

This book, the author states, is not written from the stand-point of the specialist, but rather from that of the family physician. The author states that there is nothing in the routine work of gynæcology requiring more skill than a case in general medicine. The instruments and appliances are few, and a knowledge of their use is readily acquired. He states that the effort of this book is to place before the physician a clear and common-sense statement of the various diseases of the female sexual organs, to indicate in detail the methods of treatment that can be applied by him, and also to indicate in brief the methods requiring the aid of an ably-trained consultant of larger experience.

The book opens with an excellent chapter on physical examination. Amenorrhœa is classified as primitive and acquired. This chapter is followed by those on scanty menstruation, amenorrhœa, and metrorrhagia; dilatation and curetting are described in this relation.

Under diseases of the vulva the statement is made that irritation of the clitoris is the cause of nymphomania in the female, and that its removal will usually cure the habit at once. In this opinion operative surgeons of wide experience will not be entirely in accord. Among the diseases of the vagina is mentioned vaginismus, the treatment of which is to be conducted by the wearing of a vaginal tube until all evidences of spasm have disappeared. With this therapy most gynæcologists would not be content, since the spasm characterized by the name vaginismus is nearly always due to irritation near the neck of the bladder. Gonorrhœal vaginitis is stated to be very common. The opinion of genito-urinary experts is quite opposed to this view.

Metritis is briefly but very sensibly discussed, and there is a full and most satisfactory chapter upon the proper appliances to be employed in cases of uterine displacement. Diseases of the tubes and ovaries, and fibroma and carcinoma of the womb, pelvic hæmatocele, and sterility receive due attention.

Taken as a whole, this book will be found a safe guide for the general practitioner.

Correspondence.

LONDON.

(From our Special Correspondent.)

The London Hospitals.—The Throat Department at St. Bartholomew's.—Following up my plan of presenting the readers of the THERAPEUTIC GAZETTE with a short outline of the various clinics of London, I purpose this month to give an account of the working of our throat department at St. Bartholomew's. Instituted in 1878, and placed under the care of Dr. Lauder Brunton, F.R.S., it began its work at a time when the laryngoscope had been seen by only a very few of the medical men of the day, and when experts in its use, in this country at least, were still fewer. At this time I think I am correct in saying that there were not more than one or two laryngoscopes

in the hospital; and even in 1882, when the department had been placed under the care of Mr. Butlin, the importance of a knowledge of throat work was by no means fully appreciated by the students.

In a paper which appeared at about that time in the "Hospital Reports," it was stated that the average of students in attendance did not exceed ten at any one time, and the clinic was held only once a week. Of course this was accounted for by the fact that the subject was not obligatory, and students preferred to spend their time in studying subjects which would stand them in better stead at their examinations. Now all this is changed. Laryngeal cases are seen every Tuesday and Friday, and there is considerable eagerness among students to learn all that there is to be learned in this department.

The Staff.—The staff consists of the surgeon, Mr. Bowlby, assisted by two senior assistants, qualified men, and twelve others chosen from among the senior students. The senior assistants, having already worked for at least three months in the department, are able to give the surgeon a great deal of assistance, as well as to help the dressers in acquiring a familiarity with the use of the laryngoscope, etc. Of course the dressers when first appointed are able to do but little. It is their duty to obtain a history of the cases which present themselves, to endeavor to make a diagnosis, and after this to submit their case to the surgeon, who then takes the opportunity both of correcting their diagnosis, if necessary, and of carrying out or directing the course of treatment to be followed. A diligent student will thus rapidly become fairly proficient in recognizing the more common throat ailments. Other students of the hospital and also qualified men are encouraged to come and gain experience at the same time, and a most instructive afternoon can be passed in this manner.

The Rooms.—Up to the present it has not been deemed necessary to devote a room solely to throat work, and the clinic is held in two of the smaller rooms which lead from the large waiting-hall of the Casualty Department described in the last letter. The walls of one of the rooms are painted black, and are divided up by partitions into sections, each being fitted with chairs and an Argand lamp with bull's-eye front for examinations. Dressers and visitors are encouraged to make an examination of all the cases which present themselves, and, although the accommodation is somewhat limited, yet a good deal can be seen in a single afternoon. Of course there is an undoubted advantage in having a strong light for the examination of throats, and it would be a distinct improvement if the electric light were introduced; but still the lighting accommodation is fairly good, and hopes are entertained that it may be shortly remodelled and the electric light installed.

The Cases.—The number of these has during the last few years increased very largely. They are not, of course, all diseases of the throat, many of them being nasal affections, and others of a merely trivial nature; still, there is a goodly sprinkling of interesting cases. While catarrhal affections take the lead, affections of the pharynx and tonsils, tubercular and syphilitic cases, paralysis of the cords dependent on various conditions, and cases of tumor are all well represented. With regard to these last cases it is a remarkable observation that the tumors of the larynx which present themselves appear very seldom to be innocent, those of a malignant character largely predominating.

Tumors are not, however, so common as might be expected, for Mr. Bowlby tells me that during the last two months he has had to treat only four cases,—an average of one a fortnight.

I now proceed to give a somewhat more detailed description of certain forms of treatment adopted, as this is probably the best way to give an insight into the teaching of the clinic.

Tonsillotomies.—Tonsils are not removed merely because they are enlarged, but for one or more of the following reasons: Frequent tonsillitis, pain, deafness, difficulty in swallowing, loud snoring or difficulty in breathing, thickness of speech, or imperfect development of the thorax. They are never removed while they are actually inflamed. In nearly all cases the Mackenzie guillotine is the instrument used; it is simple, efficient, and does not easily get out of order. When, however, the tonsil is so elongated that it will not fit into the ring of the guillotine, it is then necessary to employ a guarded bistoury. An anæsthetic is not generally necessary, but in the very young and very nervous one may be employed. Though severe hemorrhage rarely occurs, one is always ready with torsion forceps in case such a thing should happen. To guard against bleeding after the patient has left the clinic, a gargle of "tanno-gallic acid" is given him to take with him, with directions to sip a teaspoonful if bleeding should occur.

℞ Acid. tannic., gr. cccl x;
Acid. gallic., gr. cxx;
Aq., ℥i.

Nothing more serious than a slight attack of inflammation is likely to follow the removal.

Polypi.—For the removal of these Mr. Bowlby tells me that he now much prefers to employ the cold-wire snare, and to remove the growths by traction rather than by means of Schech's galvano-caustic loop. He is of opinion that they are more thoroughly removed when torn out in this manner, and that there is, therefore, less risk of recurrence. The objection to the cold-wire snare is the hemorrhage it causes and the force required to pull away the larger polypi; but even in these respects it is a superior instrument to either the guillotine or the polypus forceps, especially for the removal of multiple polypi. In using the cold or the hot snare the points to be remembered are the following: Get a good light through the speculum, preferably one of the pattern advised by Lennox Browne (*vide* Fig. 1). Next bear in

FIG. 1.

mind the exact position and shape of the polypi, and remember, on introducing the loop, that it is unnecessary to have this any wider than the space between the turbinated bones and the septum nasi. A narrow loop, just wide enough to touch the bones on either side, is the best, and it should be long in order to secure the elongated growths. Neither injections into the growths nor the insufflation of powders, etc., are ever recommended as methods of treatment.

Empyema of the Antrum.—The main difficulty with this affection lies generally in its diagnosis. Various methods have been tried, and the mode recently recommended, of transillumination, has occasionally been useful. But the following method, beautiful in its simplicity, bids fair to replace all others: A very fine and long trocar and canula is passed along the floor of the anterior nares on the suspected side for an inch and a quarter. The handle of the instrument is then carried horizontally inward towards the middle line as far as possible, and the trocar is then made to penetrate the mucous membrane and thin layer of bone which separates its point from the cavity of the antrum. The trocar being withdrawn, water is injected through the canula and escapes through the nares, being caught in a bowl. It can then be at once seen whether it returns mixed with pus or clear. Needless to say, the nostrils should first be carefully cleared from all secretions. No difficulty has ever been met with in performing this perfectly simple and very satisfactory diagnostic operation, and no harm results even if the original suspicions should prove incorrect.

Hypertrophic Rhinitis.—In obstinate cases of this affection the most satisfactory treatment is to cauterize the mucous surface of the hypertrophied turbinated bone. This is done either by means of chromic acid fused on to the end of a probe and applied to the mucous membrane, rendered insensitive by means of cocaine, or else the actual cautery can be used, employing one of Schech's neat little flat galvano-caustic burners. As Schech's apparatus is not likely to be in the possession of most of the men when they come to practise on their own account, they are encouraged to make more frequent use of the chromic-acid method, which requires no special apparatus. Schech's apparatus is also of great service in the treatment of chronic granular pharyngitis, when this condition defies more moderate measures, but a treatment which is found to be of great service in many such cases is to paint the pharynx daily with the following iodine solution:

℞ Iodine, gr. vi;
Potass. iod., gr. xx;
Ol. menth. pip., ♏v;
Glycerin to ℥i.

This formula, which was first recommended by Mandl, may be altered as to the proportion of iodine, remembering at the same time to alter also the amount of potassium iodide, according as a stronger or weaker solution is tolerated.

Tumors on the Cords.—These are, as I have already stated, not often seen. When they do, however, require removal, the instrument employed at the present time is a very ingenious pair of forceps, introduced into this country by Dundas Grant. The great difficulty in removing tumors situated on the edges of the cords is due to the fact that immediately the ordinary laryngeal forceps come in contact with the growth the cords at once become drawn together, rendering it nearly impossible to seize the tumor. With Grant's forceps this closure of the cords is rendered impossible by a special shape of the blades. It will be seen from the accompanying sketch (Fig. 2) that the beak of the instrument is so arranged that it can be passed right down between the vocal cords without harm. When once in this position it does

not in the least matter if the cords do close upon the blades; in fact, I am assured, both by Mr. Bowlby and Dr. Grant, that the more firmly the cords meet the easier is it to effect the removal of the tumor, and from the shape of the blades there is no risk of removing anything save the growth.

I may mention in passing that it is the custom at St. Bartholomew's in nearly all cases of operations on the larynx to employ a spray of cocaine to produce anæsthesia. This is found quite efficient and far less unpleasant to the patient than employing the laryngeal brush. Up to the present not a single case of cocaine-poisoning has been observed as the result of these applications, although this has been urged as an objection to them. Of course, when it is a question of producing anæsthesia of the naso-pharynx, cocaine is then brushed on in ten-per-cent. solution, as the spray is not then generally so efficacious.

Functional Aphonia.—This affection is often seen in the department, and generally yields readily to treatment. Formerly it used to be the practice to pass the laryngeal electrode and turn on the current from a battery. This method succeeded in a fair proportion of cases, but recurrences were also frequent. A more imposing method is now practised, the high-tension electricity from the large Wimshurst machine being called into requisition. The patient being placed on an insulated stool and connected with one pole of the machine, sparks are then taken from his larynx. This unpleasant operation is not discontinued until he can count twenty in an audible voice. Seldom more than four sittings are required to effect a complete cure.

Adenoid Vegetations.—It has long been the practice in the hospital to treat these by a thorough removal at a single sitting. The patient is anæsthetized by chloroform and placed on his side in a good light, anæsthesia being maintained during subsequent manipulation by means of the tube and air-ball devised by Mr. Mills. A strong gag is then placed in the angle of the mouth, and the finger introduced and carried all over the affected surface in order to ascertain the exact position of the growths. It is generally best to attack the neighborhood of the Eustachian tube first, especially if deafness be complained of, as the granulations in this position are apt to be overlooked at a subsequent stage, when the pharynx is full of blood-clot. The removal of these is generally effected either by the finger-nail or by means

FIG. 2.

of Meyer's ring-knife introduced through the anterior nares. The larger growths are removed by Loewenberg's forceps, an instrument which looks far more difficult to use than it really is. The chief precaution in using this instrument is to avoid catching the uvula or the septum nasi. The first may be prevented by always being careful to SEE both the uvula and soft palate in front of the forceps when these are in position; the other accident may be avoided by keeping the finger in the pharynx while the forceps are being used. The bleeding is generally very profuse, and it is for this reason that the lateral position of the patient is recommended, as it is then much more easy to prevent swallowing of blood, the clot being from time to time scooped out from the cheek. When the operation is completed it is surprising how rapidly the bleeding ceases. After the operation the patients are almost invariably kept for some time in the hospital, as although the after-treatment may be described generally as doing nothing, it is even more important than the manner of operation. The child is put to bed, and rigorously protected from all chance of catching cold. If the weather is at all cold a fire is kept up night and day. No further treatment, either local or general, is required, save in cases of delicate children who have lost much blood at the operation, and in these cases it is well to commence the use of small doses of iron after the first four days, along with cod-liver oil. It is not safe to allow the patient, however well he may feel, to leave his bed till a week after the operation. Of course all these precautions are taken in view of the risk incurred of inducing suppuration or, at least, inflammation of the middle ear. The great advantage of the operation at a single sitting, as it is practised at St. Bartholomew's, is, first, that no after-treatment is required; and, secondly, that the length of the entire treatment is reduced from several weeks, as was required by the operation at several sittings, to at most ten days or a fortnight. As for the question of the advisability of using an anæsthetic, it seems certain that the ease with which the growth can be thoroughly removed more than compensates to the patient and surgeon for the increased hemorrhage which its use entails.

In conclusion, I would repeat that, although the department presents no magnificence of outward show, as is the case in some of the special throat hospitals, the amount of material available for clinical teaching is not by any means to be despised. Lastly, I have to acknowledge the great courtesy of Mr. Bowlby, who has given me most of the information contained in the foregoing account.

T. J. BOKENHAM.

THE VALUE OF ETHEREAL ANTISEPTIC SOAP IN CLEANSING WOUNDS—REPORT OF A CASE.

To the Editors of the THERAPEUTIC GAZETTE:

DEAR SIRS:—On Monday, the 24th of April, I was summoned late in the evening to see a boy who had, while romping, fallen upon a barbed-wire fence and lacerated his face at the angle of the left jaw to the bone, tearing the structures badly for at least two inches.

In the wound were several small cinders, which I carefully removed with fine forceps, and, having thoroughly syringed the parts with carbolized warm water, I sutured and dressed the same antiseptically. The patient was instructed to call at my office the following day. I was extremely dubious about securing union of the coaptated surfaces, and was not surprised the next day to find the parts looking scarlet and a little pus present, the sutures appearing of not much utility. I used Parke, Davis & Co.'s ethereal soap freely on absorbent cotton, afterwards cleansing the parts with water, dressed with moist carbolized gauze, etc. The next day a nicer, cleaner wound was never seen. I redressed same as above, using the same precautions, and a day later removed the sutures. Union was perfect, and the results beyond all expectation.

In injuries to the scalp I have been a user of the ethereal soap,—always suture,—and have yet to meet with a case where erysipelas was a complication.

Ethereal soap is, in my opinion, one of the best adjuncts to the armamentarium of the surgeon.

Yours truly,

C. H. POWELL, A.M., M.D.

No. 2 LEWIS PLACE, ST. LOUIS, MO.

CORRIGENDUM.

In the THERAPEUTIC GAZETTE for May 15, 1893, p. 322, for "The solution is made by dissolving 1 ounce of the chlorate of potassium in 2 ounces (56 cubic centimetres) of water," read "The solution is made by dissolving 1 ounce (28 grammes), by weight, of the chlorate of potassium in 20 fluidounces (560 cubic centimetres) of water." The dose quoted from Harkin's article, in *Bull. Général de Thérapeutique*, December 30, 1892, is an unusually large one.—EDS.